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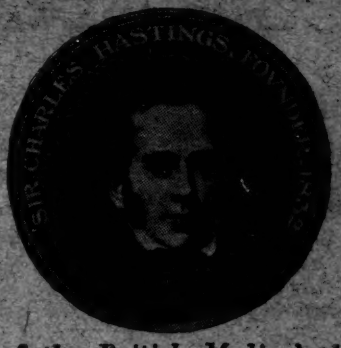

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WITH SUPPLEMENT.

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THE RADICAL ABDOMINAL OPERATION FOR CARCINOMA OF THE CERVIX UTERI:

RESULT OF ONE HUNDRED CASES RECKONED ON AN ABSOLUTE CURE BASIS.

BY

COMYNS BERKELEY, M.A., M.D., M.C.CANTAB., F.R.C.P.LOND.,

GYNAECOLOGICAL SURGEON TO THE MIDDLESEX HOSPITAL;

AND

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ASSISTANT GYNAECOLOGICAL SURGEON TO THE MIDDLESEX HOSPITAL;

SURGEONS-IN-CHARGE OF THE MIDDLESEX MILITARY HOSPITAL AT CLACTON-ON-SEA, AND SURGEONS TO THE CHELSEA HOSPITAL FOR WOMEN, ETC.

BETWEEN April, 1907, and September, 1911, we operated upon 100 cases of carcinoma of the cervix uteri by the radical abdominal method.

The time has therefore come when we can review our results from the point of view of absolute cure, or five years' freedom from recurrence, for it is agreed that patients who have survived this period without return of the growth may be regarded as cured.

The Character of the Operation.

The operation we perform is a very thorough one, and consists in the removal of the uterus with its cervix contained in a bag formed of the upper half or two thirds of the vagina, closed by a clamp we designed for the purpose. Together with the uterus and upper portion of the vagina are removed the ovaries, Fallopian tubes, and broad ligaments, the parametric and paravaginal tissue down to the upper surface of the levator ani, and the glands and cellular tissue occupying the obturator fossae and investing the external and internal iliac arteries and veins.

To effect this wide clearance the ureters are entirely isolated throughout the anterior two-thirds of their pelvic course. In certain cases part of one ureter has been deliberately resected, and the upper end implanted in the bladder. Similarly we have on occasion excised a portion of the bladder, where separation of that viscus from the cervix was impossible by reason of advanced growth.

In cases in which the glands about the external iliac artery and vein are obviously carcinomatous we extend our dissection up to the bifurcation of the aorta.

This drastic procedure we have carried out in all the cases, whether the growth was early or advanced, believing that the lesser immediate risk of a partial operation is ill compensated for by the diminished chance of permanent cure.

The Cases Operated Upon.

We operated upon every case in which there appeared to be any possibility of removing the growth, and among our patients have been many who have been dismissed from other hospitals as inoperable; some, indeed, had been sent away from two or three different institutions as hopelessly incurable.

Keeping in Touch with the Recovered Cases.

The task of keeping in touch with the recovered cases has not always been easy, for though each patient is begged to visit us periodically, and to keep us informed of her whereabouts so that we may write to her once a year, yet it not infrequently happens that after a while she becomes forgetful, and fails to present herself or let us know of her change of address. In such cases we have got in touch with the patient either by personally calling at her address or through the medical man who originally sent her, or through the postal authorities, or even through the police.

On the whole we have been successful, only seven of the cases having been lost sight of.

The Result of 100 Cases.

The results obtained are shown in the following table:

Died of the operation	20
Died of recurrent growth	32
Died of other disease	2
Lost sight of	7
Cured	39
	100

The Operative Mortality.

Under this head is included every case of death due to the operation, whether occurring within the first few days or after an interval of several weeks. The mortality of the operation for carcinoma of the cervix is very much what the surgeon chooses to make it. That is to say, that if he contents himself with a relatively partial extirpation of the tissues environing the carcinoma, and refuses to operate on extensive growths and still more on those advanced to the borderline of operability, his operative mortality will be low. If, on the other hand, he performs a truly radical extirpation and undertakes all cases up to the borderline of operability, his mortality will always be considerable, though increasing experience and dexterity lowers it to a degree. We have pursued the latter practice, believing it to be the right one.

Cases with Glandular Involvement.

In every case the regional glands removed at the operation were microscopically examined, and in 35 were found to be malignant.

As might be expected, these 35 cases show a much higher operative mortality and a much greater percentage of recurrences than do the 65 cases in which the regional glands were not malignant, but nevertheless a certain proportion of them are cured, as the following table shows:

Table of Cases in which the Regional Glands were and were not Carcinomatous.

	Glands Carcinomatous.	Glands not Carcinomatous.
Died of the operation	9	11
Died of recurrent growth ...	16	16
Died of other disease	1	1
Lost sight of	2	5
Cured	7	32
	35	65

That we are able to include amongst our cured patients no fewer than seven in whom the regional glands at the time of the operation were already carcinomatous justifies the value of the operation even when applied to very advanced cases.

Recurrence.

Death from recurrence occurred in 32 cases, as follows:

Table showing Rates of Recurrence.

	Cases.
Under a year	4
Between 1 and 1½ years	11
,, 1½ and 2 years	5
,, 2 and 2½ years	5
,, 2½ and 3 years	0
,, 3 and 3½ years	1
,, 3½ and 4 years	5
,, 4 and 4½ years	1
	32

In those patients in whom the growth returned early the seat of recurrence was usually the vagina. Late recurrences were situated in the pelvis above the vagina or along the iliac vessels or aorta.

Early recurrence in the vagina suggests that at the operation sufficient of that canal was not removed.

Deaths from other Disease.

Two patients died of disease other than carcinoma. The first had pulmonary tuberculosis at the time she was operated upon, which proved fatal a year afterwards. The second died of acute urinary sepsis following an operation to close a vesical fistula a year after the radical extirpation of which it was the sequel. Neither of these patients had any sign of recurrent growth.

Cases Lost Sight of.

Seven patients were lost sight of. Letters sent to them were returned marked "Gone away," and all inquiries through other channels failed. The frequency with which patients belonging to the labouring classes change their lodgings or the town in which they live constitutes the chief difficulty of keeping in touch with them. Some of our lost-sight-of cases may, of course, have died of recurrent growth, but we obtained no information suggesting it.

Table showing the Extent of Knowledge about the Seven Patients lost sight of.

Known to be well 1 year after operation ...	... 1
,, ,, 2 years after operation ...	... 3
,, ,, 3 years after operation ...	... 2
,, ,, 3½ years after operation ...	... 1
	7

Cured Cases.

Thirty-nine patients were cured. All of them are known to be well at the present time.

Table showing the Dates of the Operations of the Cured Cases and the State of the Regional Glands.

Initial.	Date of Operation.	Condition of the Regional Glands.	Initial.	Date of Operation.	Condition of the Regional Glands.
M. ...	Nov., 1907	Not carcinomatous.	H. ...	Jan., 1910	Carcinomatous.
S. ...	Mar., 1908	,, ,,	N. ...	Apr., ,,	Not carcinomatous.
S. ...	April, ,,	,, ,,	B. ...	Apr., ,,	,, ,,
P. ...	May, ,,	,, ,,	C. ...	May, ,,	,, ,,
A. ...	June, ,,	Carcinomatous.	H. ...	May, ,,	,, ,,
S. ...	July, ,,	Not carcinomatous.	K. ...	June, ,,	,, ,,
P. ...	Sept., ,,	,, ,,	B. ...	Jan., 1911	,, ,,
B. ...	Sept., ,,	,, ,,	R. ...	Feb., ,,	Carcinomatous.
M. ...	Sept., ,,	,, ,,	B. ...	Mar., ,,	Not carcinomatous.
C. ...	Nov., ,,	,, ,,	G. ...	Apr., ,,	,, ,,
K. ...	Nov., ,,	,, ,,	M. ...	May, ,,	,, ,,
L. ...	Jan., 1909	,, ,,	B. ...	May, ,,	Carcinomatous.
R. ...	Feb., ,,	,, ,,	L. ...	June, ,,	,, ,,
B. ...	Apr., ,,	,, ,,	R. ...	June, ,,	Not carcinomatous.
M. ...	Apr., ,,	,, ,,	S. ...	June, ,,	,, ,,
S. ...	June, ,,	,, ,,	O. ...	June, ,,	,, ,,
M. ...	Sept., ,,	,, ,,	P. ...	July, ,,	,, ,,
S. ...	Oct., ,,	,, ,,	B. ...	Sept., ,,	Carcinomatous.
W. ...	Nov., ,,	Carcinomatous.	D. ...	Sept., ,,	Not carcinomatous.
H. ...	Jan., 1910	Not carcinomatous.			

Operability-Rate and Actual Achievement.

To correctly appraise the results actually achieved by a series of radical operations for carcinoma of the cervix uteri it is absolutely necessary to know the surgeon's *operability-rate*—that is, the number of patients he has operated upon out of every 100 that presented themselves to him for advice, either privately or in his wards, or to his colleague in charge of the out-patient department that serves his wards; for it is obvious that no comparison of results founded on the mere enumeration of operative deaths, recurrences, and cures can be made between the performance of one surgeon who practises a restricted operation on carefully selected early growths and another who carries out a drastic procedure on every case in which there is a possibility of removal.

Up to September, 1910, at which time we had performed 70 cases, we were able to determine accurately our operability-rate by simply enumerating all the cases of carcinoma of the cervix presenting themselves to us in our out-patient and in-patient departments and in the course of our private practice, and comparing this number with the number of operations we performed. Thus, our first 70 cases were drawn from 112 cases presenting themselves, and our operability-rate was 62.5 per cent.

When, however, in the year 1911, the Middlesex Hospital became identified with the radium treatment of cancer, we began to get a steadily increasing number of extremely advanced cases sent up from various institutions and other sources for the purpose of radium treatment. The average state of advancement, therefore, of the cervical growths seen at our Middlesex Hospital clinics has become greatly increased, and the patients as a whole are no longer representative of the unselected cases of carcinoma of the cervix uteri attending a hospital not specially associated with radium treatment.

Our operability-rate, calculated on the number of cases seen in the last year covered by the present series, would therefore be misleading, and as we have found it impossible to separate the cases intentionally sent up for radium treatment from those sent up in the ordinary course, we assume that our operability-rate for our first 100 cases is the same as that which we accurately know for our first 70 cases—namely, 62.5 per cent.

We feel justified in adopting this course because our operative practice has never varied. We have always attempted every case in which there seemed any possibility of removing the growth.

Table showing the Number of Operations we Performed in each of the Years covered by the Present Series.

From April, 1907, to September, 1907...	... 2 cases.
,, September, 1907, to September, 1908	... 17 ,,
,, September, 1908, to September, 1909	... 25 ,,
,, September, 1909, to September, 1910	... 27 ,,
,, September, 1910, to September, 1911	... 29 ,,

From this table it will be seen that in the last twelve months we actually performed a larger number of operations than in any of the preceding years. Thus the 100 cases forming this series may be regarded as selected from 160 patients presenting themselves.

On the Continent various formulae have been adopted to obtain an accurate mathematical estimate of the late results and actual accomplishment of this operation. These formulae are explained in a previous paper of ours,[1] and can be applied if desired. For our present purpose, however, we think it will be simpler if we set the results down in a more explanatory manner.

Out of 100 patients operated on we have cured 39, or 39 per cent.

If from the 100 cases operated upon we subtract the 7 cases lost sight of, it is seen that we have cured 41.9 per cent. of the 93 cases operated on whose ultimate fate is known to us.

And if, in addition to the 7 cases lost sight of, we subtract from the 100 cases operated on the 2 cases that died of disease other than carcinoma, it is seen that we have cured 42.8 per cent. of the 91 cases operated on in whom the final outcome of the carcinoma is known to us.

Again, the number of patients that recovered from the operation was 80, and of these we have cured 39, or 48.7 per cent.

If we subtract from the 80 cases that recovered from the operation the 7 cases lost sight of, it is seen that we have cured 53.4 per cent. of the 73 cases that recovered from the operation and whose ultimate fate is known to us.

And if, in addition to the 7 cases lost sight of, we subtract from the 80 cases that recovered from the operation the 2 cases that died of disease other than carcinoma, it is seen that we have cured 54.9 per cent. of the 71 cases that recovered from the operation, in whom the final outcome of the carcinoma is known to us.

And, further, it will be seen that out of the 160 cases originally presenting themselves we have cured 39, or 24.3 per cent.

If from these 160 cases originally presenting themselves we subtract the 7 cases lost sight of, then it will be seen we have cured 25.4 per cent. of the 153 cases originally presenting themselves and whose ultimate fate is known to us.

And if, in addition to the 7 cases lost sight of, we subtract from the 160 cases originally presenting themselves the 2 cases that died of disease other than carcinoma, it will be seen that we have cured 25.8 per cent. of the 151 cases originally presenting themselves, and in whom the final outcome of the carcinoma is known to us.

Prolongation of Life in Patients Recovering from the Operation.

The surgeon is often asked, when advising a radical operation for carcinoma of the cervix, what are the prospects of prolongation of life, apart from the chances of actual cure if the patient recovers from the operation. It has been shown by A. Leitch, from a study of over 1,000 cases, and independently confirmed by McCormac, that, in patients not operated upon, the average duration of life, from the first symptoms to death, is one year and nine months. We have found from the large number of cases we have now dealt with that patients suitable for operation presenting themselves to the surgeon for the first time have, on an average, had symptoms for six months. The life expectation of these women is therefore on an average one year and three months.

It may therefore with confidence be stated that where a

patient survives the operation for three years or over, her life has been prolonged by the operation.

On this basis it will be seen that out of the 80 cases that recovered from the operation 49, or 61.2 per cent., had their life prolonged, namely:

Cured cases	39
Recurrent cases	7
Cases lost sight of	3
	49

Concluding Remarks.

This series of 100 cases of radical extirpation of carcinoma of the cervix uteri reviewed on an absolute cure basis is the first to be produced from a British source, all previous evidence as to the final value of the operation having come from the Continent. The attitude of characteristic cautiousness which distinguishes this country in taking up innovations from abroad extends to surgery, and there are not wanting those who still view the procedure askance or even with hostility.

The operation is one no surgeon can undertake lightly, for beyond the considerable mental and physical strain which accompanies its performance he may have to face the anxiety of a critical convalescence or the disheartenment of failure, and the more so the more advanced cases he ventures upon. His reward comes five years later, and, as this paper shows, is one well worth the striving for.

REFERENCE.

[1] *British Journal of Obstetrics and Gynaecology*, vol. xxiv, No. 3, 1913.

THE USE OF INSECTICIDES AGAINST LICE.

By A. BACOT,

ENTOMOLOGIST TO THE LISTER INSTITUTE OF PREVENTIVE MEDICINE.

THE scheme followed in the undernoted trials was to arrange the conditions on as nearly natural a basis for the insects as was consistent with their control and strictly comparative results, particular care being taken that the insects should have the opportunity of feeding during the experiments. Most of the remedies were those already in common use. The tests with cytisine were made at the suggestion of Dr. H. H. Dale, who very kindly supplied me with the preparation.

Cytisine is an alkaloid showing similar physiological properties to those of nicotine, but much less volatile. It was for this reason and the fact that, as it is extracted from the seeds of gorse and laburnum, an abundant supply of the raw material necessary for its manufacture is easily obtainable, that Dr. Dale suggested its trial as a remedy. (Dale and Laidlaw on the physiological action of cytisine, *Journ. Pharm. Exper. Ther.*, 1912, 3, 205.)

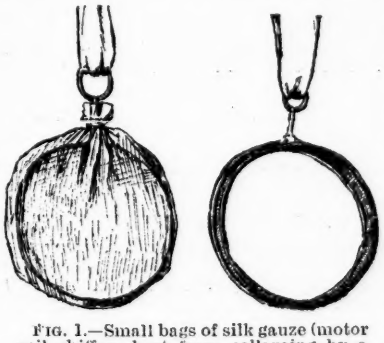


FIG. 1.—Small bags of silk gauze (motor veil chiffon) kept from collapsing by a wire gauze circle.

Preliminary trials carried out with naphthalene showed that the diffusion of vapours over the body surface beneath clothing is restricted to a very small area round the centre of distribution, in so far as it had any effect on lice. Presumably this depends partly on the curved surface of the body and partly on the difference in temperature between it and the surrounding air.

Twenty-five grams of flake naphthalene were placed in a long tube of fine muslin (nainsook) which was worn as a belt next the skin. Lice in small bags of silk gauze (motor veil chiffon), kept from collapsing by a wire gauze circle (Fig. 1), were suspended between the skin and clothing at various parts of the body above and below this belt—back, chest, abdomen, and hips—the greatest distance being 5 or 6 in. from the belt. One bag slipped from its fastenings and fell to within an inch of the belt. After a three hours' trial, it was found that the insects in the fallen bag alone were affected, some of the lice in it being paralysed, though none were actually dead.

In a second trial 5 grams of naphthalene were wrapped up in a small packet of motor veil, and this was put into one of the bags containing a number of lice and placed next the skin. A second bag, also stocked with lice, was placed in close proximity to the first, the edges of the two bags being separated by a space of only half an inch. In the first bag, in which the lice might actually come in contact with the naphthalene, the insects were killed within 3 hours, but in the second bag, although they were not noticed to feed after the first 2 hours, they were found on examination to be still active after 6 hours; many had relaxed their hold after 11 hours, but some were still active. This bag was removed after 11 hours from its proximity to the one containing the naphthalene. When examined next morning most of the lice had recovered; only two larvae and one adult were dead out of thirty in all stages of development.

This experiment was repeated—using three bags, one on either side of that containing the naphthalene. The quantity used was again 5 grams, and the surface area of the packet was 4 square inches. After 3 hours the great majority of the lice in the central bag were dead, but three or four larvae and nymphs about to undergo a moult were active. No effect at all had been produced in the adjoining bags. After 9 hours all were dead in the central bag, but in the bags on either side a few adults only had been affected and none were actually dead, though some were partially paralysed.

In order to test the relative effects of contact and diffusion of a number of remedies with greater accuracy a small apparatus was designed (Fig. 2), consisting of five wire gauze frames, each capable of being covered by a small gauze bag; they constituted a series of five small cages, each 1 in. square by $\frac{3}{8}$ in. deep; they were fixed to a flexible bar with their edges in contact and so arranged that the whole could be tied firmly against the body, the gauze on one side coming in contact with the skin so that the captive lice could feed.

FIG. 2.—Set of five wire gauze square frames, three of them covered by small gauze bags, one with cover removed, and one in the middle containing a square inch of thick lint.

In the central chamber, referred to as "contact" in the experiments, was placed a 1 in. square of thick lint impregnated with the fluid or substance it was desired to test. This lint was carefully weighed before and after impregnation, so that the weight of substance in relation to area of surface was accurately determined. Lice were placed in all five chambers—their relative position being referred to as 2 left, 1 left, contact, 1 right, and 2 right, respectively.

In one case three substances were tested at once, the substances being placed as follows:

REMEDY	CONTROL	REMEDY	CONTROL	REMEDY

The lice in the control chambers served to indicate either the action by diffusion, if any, or the fact that the substances tested were in no way interfering with each other's action on the lice.

The tests conducted with this apparatus were usually of 8 to 12 hours' duration, it being impracticable to sleep with it bound to the body. When the apparatus was removed at night the chambers were placed in separate boxes for a complete examination next day.

Naphthalene.

The 1 in. square of lint was dipped in a 30 per cent. solution of naphthalene in "benzole"; after the "benzole" had completely evaporated the lint held 0.133 of a gram of naphthalene; 45 lice put into the "contact" compartment were all killed within three hours. A few were immobile in chambers 1 right and 1 left, but most of them were active, as well as all those in 2 right and 2 left.

After 10 hours:

1 right	24 immobile, 3 active.
1 left	35 ,, 4 ,,
2 right and 2 left ...	Many immobile, a few active.

An examination next day showed that many had recovered.

Result:

"Contact"	All killed (in 3 hours).
1 right	8 killed, 19 living.
1 left	4 ,, 35 ,,
2 right	1 ,, 24 ,,
2 left	All living.

The lint was weighed next day; the loss of naphthalene was approximately half, 0.070 gram. It was left on a shelf exposed to the air at about 65° F. On the second day crystals were still visible in the fabric with the aid of a lens. On the third none were visible, but it smelt strongly. On the fourth day it smelt faintly. On the sixth no smell was perceptible.

Sulphur.

Flowers of sulphur were dissolved in carbon bisulphide; the solution contained 15 per cent. of sulphur. The lint, after a thorough evaporation, retained 0.138 gram of sulphur.

No effect was observed on any of the lice in any of the chambers after 12 hours. Examination next morning showed the following result:

"Contact"	15 dead, 20 living.
1 right	2 ,, 14 ,,
1 left	9 ,, 12 ,,
2 right	All 28 ,,
2 left	All 20 ,,

A loss of weight (presumably by the dusting out in fine powder) to the extent of 0.034 gram took place.

The survivors were kept in a box and fed; 2 more died within the next 24 hours.

"Cresylic Acid."

A few small drops were distributed over the surface of a piece of lint; by weight the quantity was 0.240 gram. After 3 hours all were immobile in the "contact" chamber, but activity was still seen in the adjoining ones. After 9 hours no movements were observed in 1 right or 1 left, but activity was still observable in 2 right and 2 left.

The cresylic acid spread on to the gauze caused a burn on the skin, and no doubt had spread also on to the gauze of the adjoining chambers, 1 right and 1 left.

Result:

"Contact"	All dead (24).
1 right	,, (27).
1 left...	,, (27).
2 right	5 dead, 1 paralysed, 16 living.
2 left...	3 ,, 2 ,, 21 ,,

Two of the survivors died, and one became paralysed within the next 24 hours. The lint retained its smell for 6 days. No smell was noticeable after 8 days.

Iodoform.

One gram was dissolved in 10 c.cm. of ether, and the lint was immersed in the solution. After the evaporation of the ether the lint retained 0.112 of a gram of iodoform. After 4 hours the lice in "contact" chamber were immobile, but had not loosed their hold; they were active in the other chambers. After 9 hours some of the lice in 1 right and 1 left were immobile.

Result:

"Contact" ...	16 dead; 3 nymphs show feeble movement.
1 right ...	2 ,, 15 living.
1 left... ...	2 ,, 20 ,,
2 right ...	3 ,, 19 ,,
2 left... ...	1 ,, 14 ,,

All the living were very active.

The lint retained its smell of iodoform for several weeks.

*Vermijelli.**

0.350 gram was smeared on to the lint. After three hours the lice were active in all chambers. After nine hours none were observed to be affected.

Result:

"Contact"	3 dead, 1 feeble, 18 active.
1 right	... ... 20 ,,
1 left	2 dead ... 19 ,,
2 right	... ... 25 ,,
2 left	1 dead ... 21 ,,

Five of the lice in the contact chamber died two days after the experiment.†

Vaseline: Naphthalene: Kerosene Oil: Benzole.

Vaseline, 1 gram 10 per cent. solution of naphthalene in kerosene 1 c.cm.; 30 per cent. solution of naphthalene in benzole 1 c.cm. The benzole would certainly have evaporated prior to use; 0.400 gram of this mixture was rubbed into the lint. After 3 hours: "Contact" all immobile. Some active in all the adjoining chambers. After 9 hours: Those in "contact" certainly dead; some still active in side chambers.

Result:

"Contact"	All dead.
1 right	2 dead, 20 living.
1 left...	2 ,, 18 ,,
2 right	... 20 ,,
2 left...	1 dead, 19 ,,

Vermijelli with Cresylic Acid.

The cresylic acid was added to a concentration of 10 per cent.; 0.212 gram rubbed into the lint. After 3 hours: All in the "contact" were immobile; some active in side chambers. After 9 hours: No change observed.

Result:

"Contact"	All dead.
1 right	1 dead, 17 living.
1 left...	1 ,, 19 ,,
2 right	... 23 ,,
2 left...	1 dead, 23 ,,

Cytisine.

0.100 gram dissolved in chloroform. The chloroform was entirely evaporated before the test. After 3 hours: "Contact" all immobile; movement occurring in all the other chambers. After 8 hours: All have relaxed their hold in contact; some are immobile in 1 right and 1 left.

Result:

"Contact"	All dead.
1 right	3 dead, 20 living.
1 left	2 ,, 18 ,,
2 right	... 20 ,,
2 left	1 dead, 20 ,,

Vermijelli with Phenol.

The phenol was added to a concentration of 10 per cent. and 0.219 gram rubbed into the lint. After 3 hours: Contact, all immobile; movement observed in all the other chambers. After 9 hours: In contact all have relaxed their hold; movement still to be seen in the other chambers.

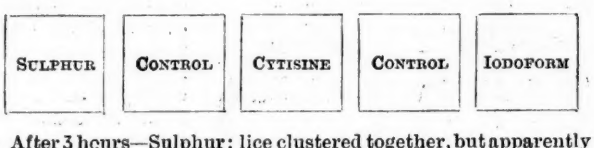
Result:

"Contact"	All dead.
1 right	1 dead, 21 living.
1 left	... 21 ,,
2 right	2 dead, 17 ,,
2 left	1 ,, 22 ,,

Iodoform, Cytisine, and Sulphur.

A further trial was carried out between iodoform, cytisine, and sulphur, all of which, being very slow in dispersion, would presumably be effective for a long period.

The pieces of lint used were those employed in the previous tests; having been freely exposed to the air in a room since the previous trials, that with sulphur for one month, with iodoform for twenty-three days, and with cytisine for seven days. The trials were all made at one time. The chambers 1 right and 1 left were stocked with lice to act as controls in case of diffusing effects. The position in the chambers was as follows:



After 3 hours—Sulphur: lice clustered together, but apparently all living. Cytisine: nearly all immobile. Iodoform: a few immobile—one or two possibly dead, others active. After 9 hours—No change to record.

Result:

None of the controls in intermediate chambers were affected.

Sulphur	1 dead, 19 active.
Cytisine	2 dead, 17 paralysed, 1 active.
Iodoform	10 dead, 3 paralysed, 5 partially paralysed, 3 active.

* An insecticide prepared by Messrs. Bowley and Son, Battersea, on the basis of Professor Maxwell Lefroy's formula, as stated in the appendix to his pamphlet, *Measures for Avoidance and Extermination of Flies, Mosquitos, Lice, and other Vermin:*

"Bolton" oil or grease (cracking point above 600°)	20 grams
(Texas) fuel oil (sp. gr. 0.86, boiling point 200° C. to 350° C.)	50 grams (58 c.cm.)
Pure soft soap	30 ,,
Water (about)	6 c.cm.

† It is doubtful to what extent the deaths were due to the vermijelli. No doubt some were, but in this and all the experiments an allowance must be made for natural deaths; when using lice from a stock box some will be old and may die naturally during the course of the experiment.

All the living insects were kept two days and given opportunity of feeding.

The final result then was:

Sulphur	...	...	19	living;	mortality	5 per cent.
Cytisine	...	...	2	,, ,,	90	,,
Iodoform	...	...	2	,, ,,	90	,,

The action of both iodoform and cytisine after so considerable a lapse of time was hopeful and rendered further tests desirable.

To impregnate the pieces of lint the cytisine was dissolved in chloroform and the iodoform in ether. The quantities used were 6 mg. of cytisine and 5 mg. of iodoform on pieces of lint 1 in. square.

After 5 hours—Cytisine: all but one seem paralysed. Iodoform: 6 appear paralysed and 4 of these may be dead; 22 can walk, and one pair are copulating. The trial was then stopped and the insects boxed for examination next day.

Result:

Cytisine	...	6 are dead, the rest partially or wholly recovered.
Iodoform	...	1 is dead, the rest apparently recovered.

Two days after the trial:

Cytisine	...	...	2 more have died—8 out of 28.			
Iodoform	...	...	7	,, ,,	8	,, 28.

The net results of the trials is to suggest that the diffusive effects of all the substances, except possibly naphthalene, is so slight as to reduce them all to a common level of contact remedies. Viewed in this light it is necessary to impregnate or thoroughly dust underclothing with them to obtain any effect. For this purpose the cost of iodoform and cytisine is likely to prove prohibitive, although their use might be practical for impregnating the seams of trousers in the neighbourhood of the fork. For this purpose the long period of their effectiveness would be a set-off against the high first cost of treatment. Cytisine has the advantage of being odourless and quicker in action than iodoform.

Naphthalene used as a powder is likely to be wasted, and when made up into sachets with sawdust, as suggested by Noel,[1] or moulded into tablets, will probably lose its effectiveness just in proportion to the slowing of its evaporation. If used in a form in which garments can be impregnated with it, it is an almost perfect remedy, as it kills quickly, and where there is any risk of infection is probably the best means available. The chief objection is its rapid evaporation; by the second day after impregnation of flannel shirting its power has either greatly waned or has already departed, according to the original quantity used. As Kinloch[2] has already pointed out, nothing is gained by the addition of iodoform to naphthalene as in the N.C.I. powder.

Insecticidal Effect when Substances are Used in Diluted Condition to Impregnate Cloth.

Attention was next directed to remedies of low cost and slow action with a view to testing their effectiveness in preventing breeding when used to impregnate garments. For this purpose the system and apparatus used in the previous experiments were not suitable, because it was necessary to keep adult lice confined for several days in order that there might be ample time for egg laying and for the eggs to develop. The following method was found to work satisfactorily in preliminary trials.

Shallow card boxes, 1 in. in diameter by ⅜ in. deep, were lined at bottom and sides with flannel shirting material that had been washed and dried by ordinary laundry process and then dipped in the solution it was desired to test, and dried off rapidly. The open top of the boxes was covered with fine chiffon, through which the insects fed. These boxes were kept by day in a linen bag suspended beneath the clothing; at night they were placed beneath a belt with the chiffon against the skin, the period available for feeding being about seven hours.

Three, or more usually four, females and two males were placed in each box; they were removed from the boxes after a week; the eggs laid were then counted and their position noted. All those laid *elsewhere than on the treated material* were removed and the test continued until the eggs hatched and the young lice had passed the first moult and recommenced to feed.

Control (untreated flannel used): 1 died; 121 eggs were laid on the flannel, none elsewhere. *Result:* The eggs hatched in due course, the larvae fed, moulted, and recommenced to feed.

Sulphur.—Flannel dipped in colloidal solution of sulphur: 1 female died; 117 eggs laid on flannel, none elsewhere. *Result:* Same as control.

Vermijelli.—Flannel treated with a 4 per cent. solution of vermijelli in water: 2 females died, 72 eggs on flannel, 1 on box, 6 on gauze cover. *Result:* Same as control.

Vermijelli.—Flannel treated with a 4 per cent. watery solution of vermijelli, to which cresylic acid had been previously added to a concentration of 5 per cent.: 1 male died, 74 eggs laid on the flannel, and 14 on the gauze cover. *Result:* Same as control.

Vermijelli and Cresylic Acid.—Flannel treated with a 10 per cent. watery solution of vermijelli, to which cresylic acid had been previously added to a concentration of 5 per cent.: 2 females and 1 male died, 70 eggs laid on flannel, and 21 on the gauze cover. *Result:* Two or three larvae died, otherwise same as control.

Vermijelli and Naphthalene.—Flannel treated with a 5 per cent. watery solution of vermijelli, to which 20 per cent. of naphthalene had been added before making the solution. *Result:* All the lice killed within 1 hour, no eggs laid.

In these experiments the tests were commenced as soon as the prepared flannel was thoroughly dry.

The last remedy is open to the objection already recorded against naphthalene, namely, the short period—about two days at most—for which it remains effective. The use of naphthalene in this series, employing the box method, however, affords a standard of comparison with the gauze bag trials of the earlier series, and indicates that the condition of these later trials favours the remedies as against the insects. In making this comparison it must be borne in mind that the quantities of vermijelli used in the later series was very much smaller than in the former when the undiluted preparation was smeared over the lint.

In the further trials with the box method, the flannel after treatment and drying was generally exposed to the air in a room with a temperature of about 65° F. for a longer or shorter period before the trial.

The following additional preparations were experimented with: An emulsion consisting of equal parts of soft soap and "crude liquid carbolic acid"*; also several preparations of a rosin soap—crude carbolic acid emulsion allied to the Isthmian mosquito larvicide used by the Panama Canal authorities. This preparation did not give a perfect emulsion and consequently proved unreliable for impregnating flannel. The same remarks apply to emulsions of soft soap and crude carbolic, in which less than 40 per cent. of soft soap was used.

Flannel Treated Two Days before Use; Period of Test 18 Hours.

Five per cent. solution of an emulsion consisting of equal parts of soft soap and "crude carbolic." Result: 4 females and 1 male killed; 1 male paralysed, no eggs laid.

Five per cent. solution of vermijelli to which 20 per cent. of naphthalene had been added. Result: None of the adults were killed and a number of eggs were laid.

The contrast between the results of the first and second trials of the vermijelli-naphthalene preparation affords clear evidence of the rapid evaporation and consequent deterioration of effectiveness of this remedy if a couple of days be allowed to elapse between the impregnation of the flannel and its use. The smell of naphthalene was only faintly discernible when the test was made.

A method was next instituted to test not only the effectiveness of the remedy as against lice, but its action on the skin.

Pieces of flannel, about 2 in. by 3 in. were treated and dried. A pocket of fine chiffon was then stitched on to the flannel, a number of lice inserted, and the open end stitched down, thus imprisoning the insects between the gauze and flannel. These pieces of flannel were then pinned on to the inside of the shirt in a suitable situation for the insects to feed through the chiffon, which was set against the skin.

Series I.—The following trials were made with flannel treated two days previously to test with:

1. A 3 per cent. solution of an emulsion consisting of 100 parts crude carbolic, 20 parts naphthalene, 70 parts of soft soap.
2. A 3 per cent. solution of an emulsion consisting of 100 parts crude carbolic and 70 parts of soft soap.
3. Treated with a solution of naphthalene in benzole at the time of trial; the flannel held 0.05 gram by weight.

After 20 hours the results were as under:

1. Two dead, 16 living; a few eggs laid.
2. Nine dead (this number includes all the females), 11 living (all males or nymphs); no eggs laid.
3. All living (20); a number of eggs laid.

No irritation caused to skin.

Series II.—In another series the flannel was treated one day prior to use, the remedies being:

4. A 10 per cent. solution of a kerosene soft soap emulsion containing naphthalene.

*The suppliers state that the fluid supplied consists chiefly of cresols mixed with a little phenol, and a certain proportion of higher homologues.

5. A 5 per cent. solution of an emulsion consisting of 100 parts soft soap, 100 parts crude carbolic, and 20 parts naphthalene.
6. A 5 per cent. solution of an emulsion consisting of 100 parts soft soap with 100 parts crude carbolic acid.

After 24 hours' trial the results were as under:

4. Seventeen living, 4 dead; a few eggs laid.
5. Fifteen living, 5 dead, 1 paralysed; 1 egg laid.
6. One living, 19 dead; no eggs laid.

No irritation was caused to the skin.

A Jaeger flannel shirt was then impregnated with a 10 per cent. solution of an emulsion consisting of equal parts of soft soap and crude carbolic. The shirt took up 1,000 c.cm., and after wringing out held 600 c.cm. After drying, lice were imprisoned in pockets of chiffon stitched on to the inner side of the shirt in the following positions: (1) On the chest; (2) in the lumbar region of the back; (3) on the outer side of the upper arm.

None were killed within 3 hours. After 5 hours a number in situations 1 and 2 were either dead or paralysed. After 10 hours all or nearly all were dead at 1 and 2, but many were still active on the arm. After 18 hours all were dead in situations 1 and 2, while of those at 3, 7 were dead and 4 paralysed. No eggs were laid. The effect on the skin was a slightly disagreeable irritation at the armpits and lumbar region. The lice fed at the commencement of the trial.

The test was repeated, using a 5 per cent. solution of the same emulsion; the wringing out process was rather more drastic—the garment retaining only 500 c.cm. It was dried during the night, lice being confined under covers of chiffon on the following day in the same situations as previously. After 10 hours some were still living in positions 1 and 2, and all were active at 3.

First Day.—After 24 hours all were dead in 1 and 2, but a few still lived in 3. No eggs were laid. Pockets 1 and 2 restocked.

Second Day.—Twenty-four hours later all were dead in the restocked pockets, also the survivors in 3. No eggs were laid.

Third Day.—The shirt was worn the next 48 hours without restocking.

Fourth Day.—The old pockets were then restocked.

Fifth Day.—Twenty-four hours later a number had died in pockets 1 and 2, but others were still living; in 3 a few were dead, others active. The frayed condition of the old pockets 1 and 2 necessitated their renewal; they were renewed and restocked. No. 3 was left.

Sixth Day.—After another 24 hours it was found that many of the lice were still living in 1 and 2; those in 3 were now all dead—a few eggs having been laid. No. 3 was not restocked. Pockets 1 and 2 were left, and a new one (No. 4) was placed on the upper part of chest and stocked.

Seventh Day.—After a further 24 hours nearly all the survivors in No. 1 were dead. No eggs laid; in No. 2 some were still active. In No. 4 all were active.

Eighth Day.—In No. 1: 9 were dead, 4 living; 36 eggs had been laid. In No. 4: 4 were dead, 16 living; 40 eggs had been laid.

The garment still smelt of carbolic, perhaps sufficiently to have some deterrent effect, but the lethal effect had evidently passed away.

No unpleasant skin irritation was noticed; a slight tingling that could just be discerned was experienced on two occasions after the start.

It may be concluded that the practical effect of the impregnation lasts about six or seven days, while the smell would possibly act as a deterrent for a few days longer.

Another shirt was impregnated with a 3 per cent. solution; after wringing, it was found to hold 500 c.cm. It was dried during the night and lice were placed in a pocket on the chest next day. After forty-eight hours, although one or two were dead, the great majority were still active.

Cytisine.

Further experiments with cytisine were made with the kind assistance of my friend Dr. A. J. Ewins, to ascertain the minimum quantity that would be of practical service for impregnating garments, and the period during which this preparation retains its efficacy.

The method employed was to impregnate pieces of flannel shirting, similar to that used for army shirts, with weak solutions. After thoroughly drying, a piece of fine silk gauze was stitched on, forming a pocket, under which the lice were placed. The piece of flannel was then pinned on the inside of the shirt, so that the insects were able to feed through the silk gauze.

Using 1 mg. per square inch of surface, 7 out of 16 lice were killed in two days, but none of the survivors died within the next three days.

Using 5 mg. per square inch, 11 out of 12 were killed within the first 24 hours, one young larva remaining active. The pocket was then restocked, and 10 out of 15 were killed within two days. A further restock resulted in 6 out of 14 dying in the next two days. A number of eggs were laid by the survivors. The piece of flannel was then completely extracted with chloroform, with the result that only traces of cytisine were recovered.

Using 10 mg. per square inch:

1st stock: 19 lice were all killed within 24 hours.
2nd stock: 15 lice—9 were killed and 3 paralysed within 24 hours; 3 remained active.
3rd stock: Of 15 lice, 10 were killed and 1 paralysed within 24 hours; 3 remained active.
4th stock: Of 14 lice, 10 were killed and 4 remained active after 24 hours.
5th stock: Of 12 lice, 3 were killed and 9 remained active after 24 hours.
6th stock: Of 12 lice, 9 were killed and 3 were paralysed within 24 hours.
7th stock: Of 10 lice, 8 were killed and 3 remained active after 28 hours.
8th stock: Of 10 lice, all were active after 24 hours, but within the next 26 hours all were killed.
9th stock: Of 9 lice, all were active after 24 hours; 6 were active after 48 hours; 5 after 72 hours; 4 after 96 hours; 5 dying during the course of the test.

The apparent falling off in lethal power at the period of the 6th stock was probably due to the fact that a cool day checked sweating.

Although quite satisfactory from an experimental point of view, there are two apparently insurmountable difficulties which prevent the use of cytisine as a practical remedy. First, its possible toxic effect if used to impregnate garments. At a concentration which, after drying, would leave 10 mg. per square inch, the quantity required to treat a shirt would amount to some 12 to 15 grams; while, if the absorption over a large area of skin proved to be cumulative, the presence of such a quantity might lead to serious or even fatal poisoning. Secondly, the high cost of production would tend to make it an extravagantly expensive remedy.

These latter trials suggest that a practical remedy may be found for preventing the spread of lice among troops by the use of a "crude liquid carbolic acid" and soft soap emulsion for the impregnation of shirts and underclothing. The emulsion should consist of 45 per cent. to 50 per cent. of soft soap, combined by heating with 50 per cent. to 55 per cent. of the crude carbolic. The strength of the solution used to impregnate the garments should be 5 per cent. of the emulsion in warm water, 3 per cent. being too weak for practical use; while solutions above 5 per cent. might cause irritation to the skin. After dipping, the garments should be wrung and thoroughly dried before wearing. A normal sized flannel shirt after wringing will retain about 500 to 600 c.cm. of the solution, and the cost would probably, apart from labour, be about one halfpenny per shirt.

What is now required is a test on a practical scale to ascertain (*a*) what percentage of men are likely to have irritable skins which might be susceptible to the small percentage of cresols in the shirt, and (*b*) to ascertain the efficacy of the remedy to keep men free from lice in the field.

I desire to record my thanks to my colleague, Dr. Harriette Chick, for valuable suggestions and advice.

REFERENCES.

[1] P. Noel: Les Mouches, les moustiques, les poux et les rats dans les tranchées. *Bull. Trim. Lab. Entom. Agric. Seine Infér.*, Rouen; January, February, March, 1916, pp. 9-15. [2] J. Parlane Kinloch, M.D.: An investigation of the best methods of destroying lice and other body vermin. BRITISH MEDICAL JOURNAL, June 3rd, 1916, p. 789 et seq.

DR. C. A. LAUBACH has published the result of an investigation to determine the possible share played by books in the dissemination of disease (*Bulletin Johns Hopkins Hospital*, 1916, xxvii, p. 183). The books examined were seventy-five dirty school library books used by children living in unfavourable sanitary conditions, 150 books handled by diphtheria patients, and a series of books artificially contaminated with *B. coli*, *typhosus*, and *diphtheriae*. The library books contained no dangerous germ, though in two instances the colon bacillus was discovered. The diphtherial bacillus could not be detected in any one of the 150 books. The *B. coli*, *typhosus*, and *diphtheriae* remained virulent for months when lodged artificially inside books, and continued as active when placed on the outer side of the covers if the volumes were kept in the dark. On the other hand, when the books were exposed to diffuse daylight, the typhoid and diphtheria bacilli never lived for over twelve days, and were destroyed by direct sunlight within a few hours.

A FATAL CASE OF GASTRO-ENTERITIS DUE TO BACILLUS AERTRYCKE *VEL* SUIPESTIFER.*

BY

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IT is always interesting to come across a new strain of the food-poisoning group and be able to refer it to its proper category. In the present instance we were able to do this (contrary to the usual experience) by agglutination tests alone. Absorption gave us valuable confirmation of our results, but was not absolutely necessary.

P. H., a wheelwright, aged 24, was admitted to the Mater Misericordiae Hospital, Dublin, at 3.30 p.m. on September 15th, 1915. I am indebted to Dr. Coyne, house-surgeon, for the following notes: The man was in a state of utter collapse, almost unable to speak, though quite conscious. Face pale and drawn, eyes sunken and dull, expression listless, mouth dry, tongue swollen and coated with thick brown fur, decubitus dorsal. The extremities were cold and blue, skin dry, no rash, pulse flickering and almost uncountable, respirations 40, temperature 101.4° F. Shortly after admission he became very restless and delirious, and so remained until he gradually sank into coma about an hour before death, which ensued at 10 a.m. on the 16th—eighteen and a half hours after admission. Whilst in hospital he had no vomiting, the bowels did not move, and there appeared to be suppression of urine. The history obtainable from the relations was scanty and unsatisfactory.

Dr. Walter Healy, who attended the patient at his own home, told me that the illness began five or six days previous to admission with violent and almost continuous vomiting and purging, accompanied by severe abdominal pains. His friends thought it might have been due to a meal of mackerel partaken of some days previously at a fried-fish shop in the neighbourhood. This, however, is mere surmise, for inquiry failed to establish the existence of any similar case in the family or neighbourhood, and the source of infection is therefore quite uncertain.

Autopsy.

This was performed by Dr. Coyne, and some of the organs reserved for more minute examination by me. It is unfortunate that no cultures were taken at the time. When I examined the specimens next day I found the stomach rather small, mucosa extremely rugose and thickened, most intensely hyperaemic, the tinge varying from dark brown to dark purple. It contained a little blood with some mucus. The intestines were almost empty, dark in colour, showed intense active hyperaemia both without and within, mucosa thickened, injected, velvety. There were no ulcers and the lymphatic apparatus (Peyer's patches, solitary and mesenteric glands) was quite unaltered. Spleen slightly enlarged, hyperaemic. Kidneys presented no well-marked naked-eye change.

Bacteriology.

Material was taken from the duodenum, jejunum, ileum, caecum, and rectum, and removed to the laboratory for bacteriological examination. The medium used was that of Drigalski in Petri dishes, and next day there was no difficulty in detecting blue, transparent-looking, non-lactose fermenting colonies in moderate numbers on all the plates. In addition to ordinary *coli*, streptococcus colonies came up in marked abundance. The blue colonies proved to consist of actively motile bacilli of typhoid-like aspect. Suspended in the hanging drop and treated with highly diluted antiparatyphoid B serum from two different sources they showed marked agglutination. They were not clumped by typhoid, Gaertner, or paratyphoid A serum. Consequently, at first I regarded this organism as paratyphoid B, and in my preliminary communication[1] I so called it. I was the more inclined to this identification on account of the fact, of which I was aware, that Bainbridge and Dudfield had recorded[2] an outbreak of gastro-enteritis (15 cases, none fatal) due to infection with *paratyphosus* B. Moreover, in four of their cases there was a history of dried haddock having been consumed on the evening prior to the outbreak of symptoms and another of the patients had eaten some cold dried fish—circumstances that seemed to bring their observations into line with mine.

I shall call the strain isolated from this case "H." Its morphological and cultural characters were those of the Salmonella group. It was a short, plump, actively motile rod, Gram-negative, and provided with a rather small number of flagella (about 3 to 6). On the Drigalski medium its colonies were permanently blue and transparent, with a tendency to milky opalescence. On Endo they were colourlesss with pink centres. Gelatine was never liquefied. On the carbohydrate media they behaved as follows (in shake cultures in ½ per cent. agar tinted with litmus and containing 1 per cent. of the sugar):

TABLE I.—*Fermentation Reactions of Strain "H."*

Class of Carbohydrate.	Variety.	Result of Growth.
Monosaccharides	Dextrose	Acid + gas.
	Fructose	Acid + gas.
	Galactose	Acid + gas.
Disaccharides	Maltose	Acid + gas.
	Lactose	No change.
	Saccharose	No change.
Trisaccharide...	Raffinose	No change.
Polysaccharide	Inulin	No change.
3-Atomic alcohol	Glycerine	No change.
5-Atomic alcohols	Xylose	Acid + gas.
	Arabinose	Acid + gas.
	Rhamnose	Acid + gas.
6-Atomic alcohols	Dulcitol	Acid + gas.
	Mannitol	Acid + gas.
	Sorbitol	Acid + gas.

Indol was not formed, neutral red was moderately reduced, and a pellicle was often formed on broth. Litmus milk was at first slightly reddened, but afterwards became blue and remained so. The cultures were inodorous.

Virulence.—The only tests made hitherto have been with white mice.

Mouse A was inoculated under skin of back with 0.1 of broth culture 3 weeks old.
Mouse B received the same amount intraperitoneally.
Mice C and D were fed with breadcrumb soaked with the same culture.

Mouse A died in thirty hours. A bloody oedema at seat of inoculation was the only *post-mortem* appearance noted. The microbe was recovered from the spleen, heart's blood, gall bladder, and seat of inoculation. From the intestines only *coli* was obtained.

Mouse B was found dead on the second morning after inoculation. There was very little evidence of peritonitis, but the intestines were filled with bright yellow, semifluid, slimy material. The heart's blood, spleen, and peritoneal fluid yielded "H" in pure culture; the intestinal contents were found to be swarming with it + *coli* in lesser amount.

Mouse C was found dead on the second morning—stomach distended with whitish matter resembling breadcrumb "H" isolated from contents of stomach and intestines, including rectum. Heart blood sterile. One colony of "H" from the spleen.

Mouse D was also found dead on the second morning. "H" recovered from contents of rectum (only).

The culture used was already three weeks old (it had stood most of the time at room temperature). The bacilli were quite virulent, but the question as to the extent to which the infection was assisted by toxicity still remains open. I have not yet had time to undertake its solution. The effect on mice is exactly what one would have expected from a member of the Salmonella group (to which the several rat viruses and mouse typhoid belong).

The organism therefore belongs to the group of paratyphoid B, and the two food-poisoners *suipestifer* and "Gaertner." For this group the name "Salmonella" has been proposed by Lignières, after Salmon, the American bacteriologist who discovered the bacillus of swine fever or "hog cholera," which is identical with the *Aertrycke* bacillus. The name "Salmonella" is convenient for the group as it avoids tiresome circumlocution and connotes a group of organisms which are culturally identical, though capable of being distinguished by serological tests.

For the sake of clearness, and in view of the fact that, owing to the prevalence of typho-coli infections during war time, much importance now attaches to the exact identification of pathogenic strains, I will enumerate the members of the Salmonella group, and explain their synonymy. The group comprises:

(*a*) *Bacillus paratyphosus* B, first isolated by Schottmüller in 1900–1, from cases clinically indistinguishable from enteric, and termed paratyphoid B by Brion and Kayser shortly afterwards. (Another typhoid-like organism, "paratyphoid A," isolated and named at the same time as "B," is clearly distinguishable from "B" by *cultural* as well as by serological tests, and is therefore excluded from the Salmonella group.)

(*b*) *Bacillus enteritidis* (*Aertrycke*), isolated in 1898 by Durham from the victims of the Hatton outbreak of food

* Based on a paper which was read in the Section of Pathology, Royal Academy of Medicine in Ireland, January 21st, 1916, but publication of which had to be withheld owing to pressure of other work.

poisoning (185 cases, 1 death), and by de Nobele, a pupil of van Ermenghem's, from a similar outbreak at a village of that name in Belgium (one fatal case). This organism has been shown to be identical with the so-called bacillus of hog cholera or swine fever, isolated in America by Salmon and Theobald Smith (in 1885) from pigs suffering from that disease, of which it was at first regarded as the cause. It appears to be identical with *B. breslaviensis* of Kaensche and Flügge. The name *suipestifer* undoubtedly holds priority. But, inasmuch as the causal relation of the organism to the disease in the pig has been called in question, and for a time at least to a large extent abandoned, it seems to me better to call it by a name that expresses its undoubted effect in human pathology (producer of enteritis).

(*c*) *Bacillus enteritidis* (Gaertner). This organism was first isolated by Gaertner in 1888 from an outbreak of food poisoning at Frankenhausen (57 cases, 1 death).

These three organisms together make up the Salmonella group. *B. paratyphosus* B usually gives rise to a symptom-complex resembling mild typhoid. The two *enteritidis* bacilli, "*Aertrycke*" and "Gaertner" are responsible for the much more acute and dangerous symptom-complex known as food-poisoning or meat-poisoning (often erroneously termed "ptomaine poisoning"). *Aertrycke* appears to occur oftener than "Gaertner," but the latter would seem to be the more virulent. The outbreak of meat poisoning investigated by me at Limerick in the year 1909, with its 74 cases and 9 deaths (all occurring within twenty-four hours of the outbreak of symptoms), is, so far as I know, the most violent hitherto recorded, and it was due to the Gaertner bacillus.

It is true that *B. paratyphosus* B has been known to produce gastro-enteritis of food poisoning type. At least one such observation has been recorded (by Bainbridge and Dudfield).[2] But the general rule is, as above stated, that *B. paratyphosus* B produces paratyphoid fever, whereas *Aertrycke* and Gaertner produce food poisoning. The three organisms are, as above mentioned, culturally identical. Gaertner is readily distinguishable from *B. paratyphosus* B by agglutination methods. But it is not so easy to distinguish between *B. paratyphosus* B and *Aertrycke* by such methods, and the distinction, though clearly established by Boycott[3] as far back as 1906, and confirmed by Bainbridge and O'Brien,[4] appears to be denied or ignored by German writers (see article by Uhlenhuth and Hübener[5]), who apply the term "paratyphoid B" to all non-Gaertner strains of this group occurring in the human subject, whilst they reserve the term *suipestifer* for all such strains isolated from the pig.

The question now arises whether the strain under discussion is a true *paratyphosus* B or an *Aertrycke*. In order to answer it, recourse was had to agglutination tests, supplemented, in the case of certain serums, by the absorption method of Castellani. The tests were applied to three cultures at the same time, namely:

1. *Bacillus paratyphosus* B—a typical strain called "R," isolated by me some years ago for a fatal case of paratyphoid fever.*

2. *Suipestifer vel Aertrycke*—a strain kindly sent me some years ago from the Lister Institute by Dr. C. J. Martin, F.R.S., director.

3. "H," the strain now under discussion.

All agglutinations were done by the macroscopic method, the serum dilutions being made first with normal saline, and then brought to the volume of 1 c.cm. in small test-tubes, with a suitably diluted suspension of the living micro-organism. The suspensions were always made from twenty-four-hours-old agar cultures, emulsified in sterile saline, filtered and thinned down with saline till they reached the proper grade of opalescence—which has to be learnt by experience. The tubes containing the dilutions were incubated for two hours at 37° C., then taken out of the incubator and examined within an hour or two. Readings taken next morning were found not to differ materially from those taken shortly after removal from the incubator. At first I tried twenty-four-hours-old broth cultures and agar suspensions killed with formaline, but found that the fresh living agar suspensions gave the clearest readings.

* The strain furnished by me to the Lister Institute, and used by Bainbridge and O'Brien in their work, *loc. cit.*

Absorption was carried out by mixing one volume of the antiserum with nine volumes of thick, opaque, filtered suspension of the heterologous strain. The mixture was left in the incubator for two hours at 37°, and the precipitated bacilli completely got rid of by prolonged high-speed centrifugation. Dilutions similar to those of the same serum unabsorbed were then put up and the agglutination test carried out as before. Most of the anti-serums used were obtained from the Lister Institute through Dr. Harriette Chick, to whom my warmest thanks are due for so kindly complying with my numerous requests. Two antiserums—namely, one for the new strain "H" and the other for paratyphoid B strain "R"—were made by me specially for this purpose. I will now give the results in a series of tables and briefly comment on them.

I. Anti-*Aertrycke* serum C 38. From the Lister Institute, stated titre 1 in 2,000. This serum was tested several times, some of it having been sent out undiluted from the Lister Institute whilst other lots were sent out diluted 1 in 20. The results obtained with all were practically accordant. The following is typical.

TABLE II.—*Anti-Aertrycke Serum C 38 (from Lister Institute).*

Dilution.	Aertrycke.	"H."	Paratyphoid B.
1 in 100	+++	+++	+++
1 in 500	+++	+++	+++
1 in 1,000	+++	+++	+++
1 in 5,000	+++	+++	0
1 in 10,000	+++	++	0
1 in 50,000	+	0	0

+++ means complete agglutination, the bacilli often forming one large flocculus; supernatant liquid clear.
++ means large flocculi, but supernatant liquid not quite clear.
+ means minute flocculi, just visible to naked eye; liquid turbid.
0 means no change as compared with normal serum control.

Here we find that agglutination alone distinctly places "H" with *Aertrycke* rather than with paratyphoid B.

II. The same serum was now absorbed with paratyphoid B and retested. Result:

TABLE III.—*Anti-Aertrycke Serum C 38 after Absorption with Paratyphoid B.*

Dilution.	Aertrycke.	"H."	Paratyphoid B.
1 in 100	+++	+++	+
1 in 500	+++	+++	0
1 in 1,000	+++	+++	0
1 in 5,000	++	++	0
1 in 10,000	+	+	0
1 in 50,000	0	0	0

From this we see that saturation with paratyphoid B has removed practically all its own group-agglutinins, whilst leaving those specific for *Aertrycke* in well-nigh undiminished amount. "H" is agglutinated to precisely the same degree as *Aertrycke* and is therefore identical with it.

III. If all artificial antiserums gave such clear results as the above, the distinction between *Aertrycke* and paratyphoid B would not have given rise to so much discussion. But this is far from being the case. *Aertrycke* serum C 42 from the Lister Institute (stated titre 1 in 32,000) failed to yield accordant results, though the test was repeated several times. The one outstanding feature of this serum was the fact that it invariably clumped paratyphoid B at a higher dilution than its own homologous organism. This is an experience that often falls to the lot of workers with the typho-coli and meningococcus groups.

IV. Another serum which gave unsatisfactory results was one made in this laboratory against strain "H." At first fairly powerful (titre 1 in 10,000), it was found after keeping six months in sealed tubes (without antiseptic) to have lost strength (titre 1 in 1,000) for the homologous organism, while still fairly strong (1 in 5,000) against paratyphoid B. Absorption with paratyphoid B robbed it of

its power of agglutinating all three micro-organisms at a dilution exceeding 1 in 100.

TABLE IV.—*Test with Anti-paratyphoid B Serum from Lister Institute (C 51; stated titre 1 in 8,000).*

Dilution.	Aertrycke.	"H."	Paratyphoid B.
1 in 100	?	?	+++
1 in 500	0	0	+++
1 in 1,000	0	0	+++
1 in 5,000	0	0	++

V. As will be seen, even in very low dilutions (1 in 100), this serum (Table IV) yielded only slight, doubtful traces of clumping with *Aertrycke* and "H," whilst as against its own strain it went to 5,000 and beyond. It is therefore highly specific. "H" is thus shown to be identical with *Aertrycke* and absorption tests are not needed.

TABLE V.—*Test with Anti-paratyphoid B Serum from Lister Institute (C 89; stated titre 1 in 8,000).*

Dilution.	Aertrycke.	"H."	Paratyphoid B.
1 in 250	+	0	+++
1 in 500	+	0	+++
1 in 1,000	+	0	+++
1 in 5,000	0	0	+++
1 in 10,000	0	0	++
1 in 50,000	0	0	0

VI. Here again there is no need for absorption. This serum is highly differential, and gives the required information by means of agglutination alone.

VII. I also tried an anti-paratyphoid B serum prepared here by immunizing a rabbit against strain "R."

TABLE VI.—*Anti-paratyphoid B Serum, Strain "R."*

	Unabsorbed.			Absorbed with Aertrycke.		
Dilution.	Aertrycke.	"H."	Para-typhoid B.	Aertrycke.	"H."	Para-typhoid B.
1 in 100 ...	+++	+	+++	0	0	+++
1 in 500 ...	++	+	+++	0	0	+++
1 in 1,000 ...	0	0	+++	0	0	+++
1 in 5,000 ...	0	0	+++	0	0	++
1 in 10,000 ...	0	0	+++	0	0	++

I combine in the one table (VI) the results obtained with this serum in the unabsorbed and absorbed condition. It will be seen that the serum is highly specific, and might serve to at once distinguish between paratyphoid B and *Aertrycke*. Absorption removes the very last trace of the non-specific agglutinins, while the specific ones persist in well-nigh full force. The diagnosis of strain "H" as an *Aertrycke* or *suipestifer* is thus placed beyond all doubt.

REFERENCES.
[1] BRITISH MEDICAL JOURNAL, 1915, vol. ii. p. 782. [2] *Journal of Hygiene*, vol. xi. 1911, p. 24. [3] Ibid., vol. vi. 1906, p. 40. [4] Ibid., vol. xi. 1911, p. 68. [5] *Kolle and Wassermann's Handbook*, second edition, vol. iii, p. 1005, et seq.

PERCHLORIDE OF MERCURY POISONING BY ABSORPTION FROM THE VAGINA.

BY
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THE unusual mode of administration of the poison makes the following case of interest.

An unmarried woman, aged 27, who had been in the habit of using mercury perchloride tablets dissolved in water as a vaginal douche, inserted one tablet (hydrarg. perchlor. gr. 8.75 in each) into the vagina, apparently under the impression that it would serve the same purpose as when dissolved and used as a douche. This was done at bedtime. I first saw her when she called at my consulting-room at 10 o'clock the following morning, complaining of pain and swelling of the vulva and giving a frank statement of what she had done.

I ordered immediate free douching with warm water. I saw her again at 1 p.m., and found that severe cramping pains in the abdomen had set in, accompanied by diarrhoea, followed later by severe and persistent vomiting. It is interesting to note that on examination I found the vaginal mucous membrane practically unaffected, though the external genitals were congested and oedematous.

At 7 p.m. I saw the patient again, when the symptoms were worse. The diarrhoea, pain, and vomiting continued; nothing would remain in the stomach; egg water was given without success. Hypodermic doses of morphine, gr. ¼, from time to time had little effect.

The following day a considerable quantity of blood was being passed in the motions, together with small flakes in the vomit. The patient complained of thirst, and was very somnolent. There was suppression of urine. On the third day the gums were swollen, inflamed and spongy, and of a dark colour, while the breath was fetid. Diarrhoea, pain, and vomiting continued persistently.

By the fourth day the pulse, which had up till then continued strong, began to waver. The salivary glands were swollen, and there was considerable salivation. The symptoms continued during the fifth day, and on the sixth day the patient showed signs of collapse, and died in the evening.

Post-mortem Examination.

The case was reported to the authorities, and Professor Harvey Littlejohn performed a *post-mortem* examination. The following conditions were found:

Skin.—Generally slightly jaundiced.

Heart.—Muscle pale and flabby. Both ventricles dilated, with resulting valvular incompetence.

Lungs.—Oedematous and deeply congested.

Stomach.—Mucous membrane showed slight signs of irritation and a few small haemorrhages.

Intestines—The upper part of the small intestine showed swelling of the mucous membrane, injection, and a general catarrhal condition. The whole of the ileum was deeply livid in colour externally, while internally the mucous membrane was of a uniform brownish-green colour, swollen, and in a necrotic condition. Here and there there were tumefied areas, with extensive blood suffusions under the mucous membrane, which were undergoing gangrenous ulceration. The necrosis was more marked in the lower part of the ileum and caecum. The contents of the small intestine consisted of a dark-brown fluid, apparently altered blood and mucus. The large intestine presented similar appearances, with marked infiltration of the submucosa.

Liver.—Some cloudy swelling, but otherwise appeared normal.

Spleen.—Engorged and somewhat enlarged.

Kidneys.—Enlarged and soft in consistence. Cortex pale and swollen. The capsule stripped easily. The medulla showed areas of congestion.

Pancreas.—No obvious changes.

Uterus.—There was no enlargement. There was no peritonitis.

Microscopic Examination of Tissues.

Microscopic examination of the intestine, kidney, and liver was carried out at the Pathological Department of the University of Edinburgh by Mr. R. Muir. The following is his report:

Large and Small Intestine.—Sections show extreme and extensive necrosis of the mucosa. Large numbers of intestinal bacteria have found this necrotic surface a suitable medium for their growth, large masses of these being found. The submucosa is swollen and extensively infiltrated by fibrinous exudate, especially in the small intestine, with some areas of leucocytic infiltration. This coat also shows marked necrosis, recognized by the complete loss of the nuclear staining reaction. The muscular coats also show necrosis, the fibres showing a hyaline degeneration with loss of nuclei. There is some cellular infiltration of the peritoneal coat, but this is not a marked feature. There are also present throughout these coats deposits of pigment, probably derived from blood. These have no special relation to any particular tissue, and may be *post mortem*. The whole condition is intensely necrotic with fibrinous infiltration.

Kidney shows extensive necrosis and catarrh of the renal epithelium of all the secreting tubules, especially in the convoluted series, many of these degenerated epithelial cells showing very marked granular degeneration going on to calcification. This calcification is very irregular in distribution among the tubules; the granules vary in size and have a strong affinity for the basic stains. The collecting tubules do not show so much necrotic change, but they contain granular and hyaline casts. The connective tissue of the renal substance is not much altered and the capillaries in the tuft show some slight thickening of their walls, but no necrotic change. The condition of the kidney is mainly that of intense parenchymatous degeneration going on to calcification.

Liver on the whole shows no gross changes, in fact it is extremely well preserved tissue. There is some degree of congestion and also some slight pigmentary deposit in the hepatic cells which at parts show some slight fatty degeneration. A striking feature is the well-preserved appearance of the liver cells, with numbers of nuclei undergoing mitosis. It suggests

to me that the poison has only acted as a mild stimulant to the liver tissue and has had no toxic effect.

Although many cases of poisoning have occurred from the use of mercury perchloride as a vaginal douche, I am not aware of an instance in which the circumstances were similar to the present case. It is interesting also to note the typical nature of the symptoms produced and the manner in which mercury picks out the lower end of the small intestine, the caecum, and the ascending colon as its selective site. The suppression of urine and the evident changes found in the kidney tissue show the marked action of mercury on this organ. The medico-legal aspect of the case is also of importance.

I am greatly indebted to Professor Harvey Littlejohn for his assistance in compiling the notes of the case.

CASE OF PUERPERAL SEPTICAEMIA TREATED BY AUTOGENOUS VACCINE, WITH RECOVERY.

By WILLIAM GRIER, M.B., Ch.B., D.P.H.,
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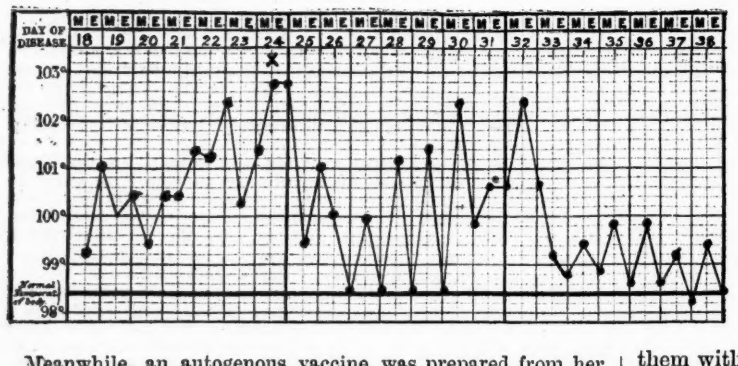
THE following case presents features of both clinical and bacteriological interest:

Mrs. M., aged 28, was delivered of twins on February 3rd, 1916. Two years ago I had delivered her with forceps of her first child, and fully a year ago I curetted her for an incomplete abortion.

There was nothing very unusual about the labour, the first presentation being a footling ending in a breach, and the second a vertex. The children weighed 5½ lb. and 5 lb. respectively. There was a slight tear of the perineum. The patient continued well until the afternoon of the eighth day, when she felt hot and flushed. On the following morning she complained of rheumatic pains behind the left shoulder. She felt sick, and vomited freely. The temperature was 101° F., and the pulse 100. The lochia was not fetid. The uterus was firm and well involuted. There was no abdominal tenderness. The milk secretion was free. She had a superficial inflammation of the gums associated with a few carious teeth. Quinine salicylate, combined with Dover's powder, was prescribed. In the evening the temperature was 102° F., and during the following two days it ranged between 101.5° F. and 103° F. Rheumatic pains in the left shoulder and in the bursa over the left elbow were prominent symptoms. On the fourth morning of her illness she was given a vaginal douche. In the evening her temperature had fallen to 100° F., and she felt decidedly better. For two days thereafter there was no pyrexia. On the morning of the seventh day of her illness, however, the temperature had risen to 104° F., and the pulse-rate 120 to 130. There was now severe pain and tenderness associated with some swelling over the left suprapatellar synovial pouch. The milk secretion had practically ceased. Quinine sulphate was prescribed freely. During the next six days the temperature ranged between 103.5° F. and 105° F., and the pulse-rate from 120 to 140. She had five severe rigors, occurring chiefly at night. There was also pain in the right groin. The inguinal glands were slightly enlarged and were associated with a pustular eruption on the pubis. Quininism developing, the administration of the drug was stopped. On the ninth and eleventh days of her illness 20 c.cm. and 25 c.cm. of antistreptococcal serum were given and on the thirteenth day 25 million of streptococcal vaccine (from a fatal case of puerperal septicaemia) were injected.



Meanwhile, an autogenous vaccine was prepared from her own blood, the culture being a pure growth of a short chained diplo-streptococcus. Of this 25 million organisms were injected on the sixteenth day of her illness, and on the eighteenth day 50 million. Every third day thereafter she was given 50 million until near the end of her illness, when she had 75 million. The course of the temperature during the remainder of her illness is indicated in the chart. A curious feature in the case is the rise of temperature (marked ×) on the morning of the twenty-fourth day of her illness to 102.8° F. This was associated with a well-marked, fine, but discrete papular rash of scarlatiniform type, appearing first on the face, chest, and upper extremities, and on the following day, but less pronounced, on the lower part of the body and lower extremities. There was no erythema, urticaria, or itching, as frequently found in serum rashes. Desquamation occurred after the rash had gone. Shortly afterwards there was a fall in temperature, with a subsequent rise associated with abscess formation in the bursa over the right shoulder. After this was opened the temperature gradually fell to normal. She also had a dry, angry-looking herpetic eruption at the left angle of the mouth, which was not of the vesicular type as met with in most febrile diseases. She made an excellent convalescence, and is now in good health.

The source of infection is somewhat obscure, but clinically I am inclined to regard the case as one of scarlet fever which had developed during the puerperium. The organism has microscopic and cultural characteristics more in common with the organism described by W. Mair in the *Journal of Pathology and Bacteriology* (vol. xix, No. 3), in his article on "Experimental scarlet fever in the monkey," than with the ordinary *Streptococcus brevis* of the mouth. A similar organism I have since isolated from cervical and axillary glandular abscesses occurring in scarlet fever patients treated by the Milne method in their own homes.

The patient was treated in a house of one apartment, in which there also lived and slept her husband, mother, the twins, and for a time, her first child. There was no previous history of the patient having suffered from scarlet fever.

I am much indebted to Nurse Allan (the maternity nurse of the burgh), who attended the patient from the second day of the puerperium and throughout the illness, and also to Dr. John Anderson (bacteriologist to the Victoria Infirmary) for his services as clinical bacteriologist in the case.

A NEW SOLID MEDIUM FOR THE ISOLATION OF THE CHOLERA VIBRIO.

By Captain H. GRÆME GIBSON, R.A.M.C.

BASED on the fact that the cholera vibrio alone of all the intestinal organisms acidifies starch,[1] the following alkaline medium has been devised for its rapid isolation.

Owing to the medium possessing differentiating properties it should be especially useful in the detection of "cholera carriers," as the faeces emulsified in broth can be plated directly on to it. In the case of water examination, after enrichment in peptone water for a few hours, if a drop or two of the peptone water is plated a tentative diagnosis can be arrived at in eighteen hours owing to the allied vibrios taking a longer time than the true cholera vibrio to bring about acid production.

Preparation of Medium.

The formula is: Agar 30 grams, peptone 10 grams, starch 10 grams, sodium bicarbonate 1.5 grams, litmus (sufficient to colour medium), and water 1,000 c.cm.

Weigh out 30 grams of powdered agar and emulsify with 250 c.cm. of cold water. Then weigh out 10 grams of peptone (Chapoteaut) and 1.5 grams of sodium bicarbonate. Mix together and emulsify in another 250 c.cm. of cold water. The two emulsions are then mixed in a two-litre flask and another 500 c.cm. of water added. The solution is complete in the steamer. When dissolved the medium is clarified with white of egg and filtered in the steamer.

Weigh out 10 grams of potato starch, emulsify it with some of the filtered agar, and add the emulsion to the remainder of the medium.

The whole is sterilized by the fractional method, after which enough sterile watery solution of litmus is added to bring about a blue colour of the medium.

The final reaction of the medium will be found to be −2 to phenolphthalein. I tried several degrees of alkalinity and found that 0·15 per cent. sodium bicarbonate gave quite the best results.

If the plates are examined eighteen hours after inoculation, by looking obliquely through them with a dark background behind, the plate being held parallel to the window, the cholera colonies will be seen to have acquired a faint pink colour, while the colonies of the other intestinal organisms are blue or of a whitish colour. The examination is facilitated by the use of a hand lens. At this time the allied vibrios also produce blue colonies, but at the end of about thirty-six hours they also acidify the medium, though to a less extent than cholera.

At the end of twenty-four to twenty-six hours the cholera colonies have attained a delicate pink colour with a faint pink halo round them, while the other colonies still remain blue; also the colonies are of a good workable size to pick off and proceed with the serological tests.

After forty-eight hours, if the cholera colonies are in excess and the plate spread somewhat thickly, the medium itself becomes distinctly acid, and colonies other than those of cholera take on the pink tinge. However, the cholera colony even at this time can still be distinguished by the deeper red centre which the other colonies lack.

The only other organisms which are known to acidify starch are some of the diphtheroid group and some of the non-pathogenic water vibrios. These should not present any great difficulty, as Gram's stain on the one hand, and the serological test on the other, dispose of these organisms.

The following experiments have been carried out:

Experiment 1.—Ten cubic centimetres of broth were inoculated by emulsifying some faeces in it. To this was added a very small quantity of a culture of *V. cholerae*. The tube was well shaken, and 0.25 c.cm. of the broth transferred to a second tube of broth. Two drops of this broth were immediately plated on to the medium, the same rod being successively used for three plates. The first plate was too crowded to be of any use, but the second and third plates gave good discrete colonies, and on these plates the cholera colonies could be recognized in eighteen hours. Every colony on these plates was picked off, and all the pink colonies were proved to be cholera, whilst the blue colonies in every case proved otherwise.

Experiment 2.—The first broth tube from the previous experiment was kept at room temperature for two days. At the end of that time 0.25 c.cm. of this broth was added to 10 c.cm. of fresh broth, and a drop of this was immediately plated out as in the first experiment. The plates were rather too thickly spread to give good discrete colonies, but the cholera colonies could be easily detected. These colonies were again tested with cholera immune serum, and the differentiation proved correct.

Experiment 3.—This experiment was undertaken to see whether any of the normal water vibrios were capable of acidifying starch. The water was taken from a pond after heavy rain, and was taken straight to the laboratory. Some of the water was first enriched by incubating in peptone water for a few hours. One drop of this peptone water was then plated, and at the end of eighteen hours a few pinkish colonies were present. Some more of the water was plated direct, and in this case it took twenty-four hours before any pinkish colonies appeared. In both cases the pink colonies that were present were of a lighter shade than that which is produced by the cholera vibrio, and I do not think that they are very likely to be confounded with it. In addition, the red centre to the colony that is produced by the cholera vibrio in forty-eight hours was not present in these cases. This organism proved to be a normal vibrio of water.

Other Experiments.—The following organisms were also plated out: *B typhosus*, *B. paratyphosus* A, *B. paratyphosus* B, coliform organisms, *B. dysenteriae* (Shiga and Flexner), *B. enteritidis* (Gaertner), streptococci, V. Finkler Prior, *V. metchnikovi*.

In no case did the above organisms acidify the medium, except in the case of the two vibrios, which produce a slight pink halo, but the colonies themselves, when viewed obliquely, do not become pink until a very much longer time has elapsed than that required to recognize the vibrio of cholera.

REFERENCE.

[1] Gordon, M. H.: Note on the ability of *V. cholerae asiaticae* to decompose starch, *Centralb. f. Bakt.*, 1 Abt., orig., Bd. 42, 1906.

NOTE ON THE VALUE OF HEXAMINE IN AURAL SUPPURATION AND IN MENINGITIS.

BY

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LIEUTENANT R.A.M.C.

HEXAMINE (urotropin) has come to be recognized as the most efficient of urinary antiseptics. Its action depends on the fact that it is for the most part excreted by the kidneys, and, in an acid urine, undergoes decomposition, liberating free formaldehyde.

Various experimenters have stated that after administration the drug may be recovered not only from the urine, but from the bile, pancreatic juice, saliva, milk, etc., from the synovial and cerebro-spinal fluids, and from nasal and aural discharges.

Crowe demonstrated that hexamine given by the mouth could be detected in the cerebro-spinal fluid withdrawn by lumbar puncture one hour later. He also asserted that after the subdural inoculation of dogs and rabbits with streptococci the administration of hexamine appeared in many cases to avert the onset of meningitis, and, consequently, he advocated its routine use prior to operations on the brain or spinal cord. Barton followed up these observations by suggesting that the drug might prove useful in middle-ear suppuration, as he had been able to recover it from aural discharges.

It seems probable, however, that there are two sources of fallacy in the results and deductions of these workers. First, they employed Hehner's sulphuric acid test, which does not differentiate between the drug hexamine and its decomposition product formaldehyde. Secondly, hexamine is not split up, and hence can be of no antiseptic value in any but an acid medium. Ear discharges and normal cerebro-spinal fluid are alkaline.

In view of these considerations the following investigation was undertaken. The first fallacy was obviated by the use of the Rimini-Burnam reaction, whereby formaldehyde can be detected in urine in a dilution of 1 in 150,000.

Three solutions are required:

(1) ½ per cent. solution of phenylhydrazine hydrochlor.
(2) 5 per cent. solution of sodium nitro-prusside.
(3) Saturated solution of caustic soda.

A small quantity of the fluid to be examined is placed in a test tube, and three or four drops of each of solutions 1 and 2 are added, then a few drops of solution 3 are poured down the side of the tube. A dark green colour indicates the presence of formaldehyde. Should the test prove negative, it is repeated with a fresh sample of the fluid which has been boiled with a few drops of sulphuric acid, when a positive result will show that hexamine was present.

As regards the second possible source of error, it was thought that if hexamine actually appeared in aural discharges its decomposition and consequently its antiseptic action could be favoured by the introduction of weak acids into the ear, just as intranasal lupus is treated by giving iodides by the mouth and applying hydrogen peroxide locally. It is known that in meningitis the reaction of cerebro-spinal fluid changes from alkaline to acid, a change which would appear to favour the action of hexamine.

Four untreated cases of suppurative otitis media were investigated, all the patients being children attending the ear and throat department of the Royal Hospital for Sick Children, Edinburgh. Local treatment was stopped. The hexamine was given by the mouth and in dilute solution. The fluids examined were: (1) Washings obtained by syringing the ear with a few cubic centimetres of distilled water, and (2) the urine.

CASE I.—H. H. Chronic otitis media dating from attack of scarlet fever a year ago. Large perforation. Much fetid pus. After 10 grains of hexamine, thrice daily for a week, the urine contained formaldehyde, the ear washings no formaldehyde and no hexamine. The dose was increased to 20 grains thrice daily, but had to be stopped in four days on account of pain on micturition and enuresis nocturna. Formaldehyde was present in quantity in urine, but no formaldehyde or hexamine in the ear washings.

CASE II.—L. B. Chronic otitis following measles two years ago. Membranes totally destroyed. Curdy fetid discharge. Ten grains of hexamine was given thrice a day for a week. The urine was then found to contain hexamine, but no formaldehyde; its reaction was neutral. The ear discharge showed neither hexamine nor formaldehyde. After 20 grains of hexamine thrice a day for a second week the results were exactly similar.

CASE III.—C. P. Chronic otitis for eighteen months. Small perforation. Profuse discharge. At the end of the first week, 10 grains of hexamine thrice daily, the urine contained formaldehyde. No hexamine or formaldehyde in aural discharge. At the end of second week (20 grains) these results were unaltered, but the patient had frequency of micturition.

CASE IV.—J. G. Discharge from right ear for three months. Small central perforation. Much muco-pus. Formaldehyde present in urine, but neither hexamine nor formaldehyde in the ear washings. Increase of the dose did not alter results.

It will be seen that hexamine or formaldehyde appeared in the urine in all cases, but in no case could either substance be detected in the aural discharge. The drug was given in fairly large doses, and symptoms of intolerance appeared in two of the cases.

With regard to the cerebro-spinal fluid, results appear to point to a similar conclusion, namely, that hexamine either does not make its way into this fluid at all or appears in such small quantity as to be of no therapeutic value. Intradural injections of hexamine may conceivably have some effect on the meninges near the site of injection,

but oral administration is useless. Two cases may be cited in support of this view.

1. E. M., suffering from pneumococcal meningitis, was given 30 grains of hexamine one hour before lumbar puncture. The cerebro-spinal fluid was turbid, reaction neutral; it contained no hexamine or formaldehyde. (Rimini-Burnam test.)

2. D. H., suffering from meningococcal meningitis, was given 50 grains of hexamine. Lumbar puncture one hour later. Cerebro-spinal fluid turbid, acid reaction; it contained neither hexamine nor formaldehyde.

In reading reports of cranial and spinal injuries sustained during the present war one frequently encounters the statement that "hexamine was given," but an opinion is seldom expressed as to the value of such treatment. The matter can be settled only by further investigations along the lines indicated above.

I am indebted to Dr. John Thomson and to Dr. W. G. Porter for their permission to record the cases.

BIBLIOGRAPHY.

S. J. Crowe: Urotropin in the Treatment of Systemic Infections. *Johns Hopkins Hospital Bulletin*, September, 1912.

S. J. Crowe: On the Excretion of Urotropin in the Cerebro-spinal Fluid, and its Therapeutic Value. *Johns Hopkins Hospital Bulletin*, April, 1909.

Barton: The Elimination of Urotropin by the Mucous Membrane of the Middle Ear. *Journ. Amer. Med. Assoc.*, liv, 1910.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CERTAIN BODIES FOUND IN THE URINE IN CASES OF TRENCH NEPHRITIS.

IN the centrifuged deposit of the urines of twenty-five cases of trench nephritis treated at this hospital peculiar and distinctive bodies were discovered by our laboratory assistant, Mr. Mann. These bodies had the following characters:

The most striking consisted of three circular cells arranged somewhat in the form of a pair of spectacles. They were of a greenish or greenish-yellow colour. The individual cells measured about 26 μ in diameter, but the combined three when joined together measured only 60 μ in their greatest diameter, as they were superimposed or overlapped. The general outline was constant; in other words, each retained its original position. The contents were granular, with at times a nucleus circular in outline situated slightly out of the centre of the cell.

The second form met with was a circular granular body having all the characters of the laterally-placed bodies above described. This measured exactly the same as the individual cells described above. No doubt this was a free form.

The third form was an irregularly granular body with an indistinct outline, and probably this represents a degenerated form of the second form or the central cell of the first. From the second form distinct pseudopodic projections were seen.

In order to eliminate accidental contamination catheter specimens were taken in sterilized flasks from some of the patients.

A number of urines from other diseases were centrifuged and examined but no similar cells were found.

We are indebted to Dr. Coles of Bournemouth for much assistance.

A. R. FRIEL,
J. DRUMMOND,
Captains S.A.M.C.

Mont Dore Military Hospital,
Bournemouth.

THE VALUE OF A MILK DIET PRIOR TO THE USE OF KHARSIVAN OR SALVARSAN.

THE following figures show, I think, that if a person to whom salvarsan or kharsivan is to be given is put on a milk diet for a period of twenty-four hours prior to the operation, the toxic effects of the drug are reduced to a minimum, and the patient suffers little or no discomfort.

Prior to the routine use of milk in all these cases, the majority of the venereal patients in the Union Hospital, Gateshead, were on an ordinary diet unless they were so ill that they could not take it, when, as a general rule, their diet consisted solely of milk.

My attention was drawn to the possible value of this diet one day when I saw five patients to whom salvarsan had been given the previous day. Of the five, two who had had milk only had no toxic effects whatever, whilst the other three, who were on ordinary diet, were really ill. The same thing occurred in the case of four women shortly afterwards. Two on milk were very comfortable, while the other two, on ordinary diet, had vomiting and diarrhoea. We then tried the effect of milk in all cases, and the results in the first 100 injections are given below. The procedure was to give four pints of milk only for twenty-four hours prior to the injection and an ordinary diet afterwards. In some cases patients had a full dinner a few minutes after the injection with no ill effects.

The usual toxic results that we had previously met with were (1) persistent headache; (2) vomiting; (3) diarrhoea; (4) rigors; (5) albuminuria. Of the patients on milk diet, in 77 there were no toxic effects; of the remaining 23 all had headache and 19 of them vomited—1 six times, 2 four times, 6 three times, 8 twice, and 2 once. Of those who vomited, 9 had diarrhoea also, and so had 3 of the remaining 4; 1 patient had albuminuria; there were no rigors.

Prior to the use of the milk one might say that every patient complained of headache to a greater or less extent, whilst the same might be said of vomiting.

LIONEL L. WESTROPE, M.D.,
Medical Officer.

Union Hospital, Gateshead-on-Tyne.

THE PREVENTION OF GALL STONES.

WHEN a sufferer from the agonizing attacks of gall stones asks his medical adviser what he can do to prevent other attacks, he usually receives the conventional answer that he must diet himself, take active exercise, and a course of alterative medicine, such as sodium phosphate. I believe these methods are quite useless. Stone in the gall bladder is, like stone in the urinary bladder, caused by the bladder not being completely emptied each day, and the unexpelled residue decomposes and precipitates the solid matter of which the stone is composed.

It is common knowledge that the best way to prevent urinary stone is to make sure that the bladder is completely emptied daily, and if necessary the patient must use a catheter for that purpose. To prevent gall stones from forming it is just as essential to empty the gall bladder completely each day. The method is to make pressure over the gall bladder in the early morning, before breakfast, with the round end of a dumb-bell weighing 12 lb. The gall bladder is usually full in the early morning, and, with gentle pressure at first, the contents can be heard escaping with a characteristic gurgle, and by increasing the pressure and a sort of rolling movement from the fundus towards the neck, the whole of the contents are pressed out. It is as well to keep to the right of the abdominal middle line and to avoid pressing on the aorta, as such pressure constantly repeated might do harm.

I feel almost inclined to rename the gall bladder the "castor-oil gland," for the expression of the gall bladder mucus is always followed within half an hour by an action as grateful as would be produced by half an ounce of the oil. At the commencement of this method there may be in the gall bladder lumps of thickened mucus or concretions, and there would then be some discomfort as they passed along the duct, but in a few days, when this débris has been cleared out, the patient, who may have long suffered from agonizing attacks of gall stones for years, will begin to experience peace in his epigastrium.

Any one may easily learn to practise this method on himself, but it should never be used during the course of an attack; then a rubber hot water bag and morphine are the best treatment.

Sunderland. THOS. A. WATSON, M.B., C.M.

MR. ALFRED GRACE, M.R.C.S., L.S.A., of Chipping Sodbury, Gloucestershire, brother of W. G. Grace the famous cricketer, left estate valued at, £2,134 gross, with net personalty £1,089.

STATISTICS collected by the American National Association for the Study and Prevention of Tuberculosis show that there are now nearly 3,000 agencies engaged in the fight against tuberculosis in the United States. The list includes 557 sanatoriums and hospitals, 158 tuberculosis boarding houses, 90 hospitals for the insane, 35 penal institutions making special provision for tuberculosis, 455 dispensaries, 310 open-air schools, and 1,324 anti-tuberculosis associations and committees.

Reviews.

DIAGNOSIS AND TREATMENT IN HEART AFFECTIONS.

THE contents of Sir JAMES MACKENZIE'S *Principles of Diagnosis and Treatment in Heart Affections*[1] were originally prepared as lectures to post-graduate students, but the outbreak of war preventing their delivery he has published them in a book, dividing the subject matter into chapters instead of lectures, but retaining the colloquial form of expression.

He commences by setting forth his views on the methods and aims of medical research. He considers that the advance of medicine will be halting, and whole fields essential to its progress will remain unexplored until the general practitioner takes his place as an investigator. The chief efforts of the profession, he asserts, have been spent in the recognition of the more chronic diseases after they have killed the individual, or when they have gone beyond the stage of cure, but we should, on the contrary, endeavour to detect disease in the earliest stage. He holds that, could we appreciate them aright, the patient's sensations give the first indication of disease, and a proper appreciation of these sensations will enable us to understand many obscure complaints, such as abnormal heart action. The lack of appreciation of the significance of the patient's sensations is shown in the attitude of the profession towards pain; the fact that such expressions as a "tender liver," "a tender appendix," are used by teachers and in textbooks proves, he considers, that the profession is not cognizant of the simplest elements of the investigation referred to. Patients' sensations must be studied, and all associated phenomena carefully noted; bacterial invasion gives rise to sensations, and Sir James Mackenzie thinks it likely that each organism gives rise to peculiar sensations. To acquire a knowledge of the life-history of chronic diseases it is necessary to be able to follow individual cases from the start to the finish. It is, he says, a remarkable fact that there is not to be found in medical literature the history of one single individual carried on from the attack of rheumatic fever which started the valve disease in mitral stenosis, down to the time of death, and containing a record and due appreciation of the changes which took place.

Since a knowledge of the progress of disease reveals the meaning of abnormal signs and constitutes the basis of intelligent prognosis, investigation of prognosis can only be carried out by those who have the opportunity of watching individuals during the whole course of the disease. The opportunity for investigation in hospitals is too restricted; the general practitioner is the only investigator who has the real opportunity.

The governing motive of all clinical investigation when dealing with any particular symptom should be to answer the question, What bearing has the cause of this symptom on the patient's future? and, when the heart is concerned, whether it indicates, or foreshadows heart failure. Heart failure is defined by the author as the condition in which the heart is unable to maintain an efficient circulation during the efforts necessary for the daily life of the individual.

Various signs and symptoms of cardiac affections are discussed from this point of view, and it is laid down that these signs and symptoms arise from three definite and distinct sources:

1. Structural: that is, changes in the size, shape, or position of the organ, or modification of its material constitution.

2. Functional: that is, changes due to modification or inefficiency of the function of an organ.

3. Protective: that is, the presence of sensations, always disagreeable, produced by the intervention of the nervous system for the protection and resting of the organ.

The structural symptoms are discussed in chapters on increased size of the heart, murmurs and abnormal rhythm. The functional are described under breathlessness, fainting, dropsy, etc., and the protective under angina pectoris.

The sense of exhaustion, so common in cardiac cases, the author thinks, is not of cardiac origin. He believes that it is produced by a vasomotor mechanism and is brought about by a depletion of the higher nervous centres, the provoking agent being frequently a toxin.

The methods essential to the proper examination of cardiac cases have hitherto, Sir James Mackenzie says, not been utilized. In books on diagnosis nearly all the stress has been laid on physical examination and little attention given to the elucidation of the patients' sensations, nor has sufficient attention been directed to finding out what the manifestations of the heart may be in health. In treating of the different signs and symptoms he points out that in almost every case the symptom under discussion may be compatible with recovery or at any rate with useful, if restricted, life and a stationary condition of the disease. He insists that no serious view of a case, far less a grave prognosis, should be based on the presence of one physical sign, but he is convinced, notwithstanding many statements to the contrary, that, although the truth of this is admitted in theory, in practice it is ignored.

In the small portion of the book devoted to treatment the author lays down the rule that the essential principle is the care of the heart muscle. Rest, diet, exercise, and baths are discussed, but a warning note is sounded as to the extravagant claims made on behalf of certain systems of exercises and baths: "The reputation of Nauheim baths and of the artificial imitations of them depends . . . more on brazen advertisements, financial interests, and the slavish tributes of other spas than intellectual appreciation and application of the principles of treatment." With regard to drugs, the action of digitalis, strophanthus, the nitrites, sedatives, oxygen, and atropine are dealt with; caffeine, strychnine, and oil of camphor it is thought probably act only indirectly through the nervous system.

The book, containing as it does the experience and conclusions of a lifelong worker and pioneer in this branch of medicine, will command general attention. The fact that in places it exhibits some of the uncompromising expressions of opinion and the iconoclastic spirit of the pioneer makes it stimulating reading; and, while some of the author's conclusions may in the future be modified as the result of the continuous investigations he hopes to see undertaken, everyone engaged in the practice of medicine will find his book suggestive and inspiring.

[1] *Principles of Diagnosis and Treatment in Heart Affections.* By Sir J. Mackenzie, M.D., F.R.S., F.R.C.P., LL.D.Aberd. and Edin., F.R.C.P.I.(Hon.). London: H. Frowde; Hodder, and Stoughton. 1916. (Demy 8vo, pp. 282; 26 figures. 7s. 6d. net.)

ANIMAL PARASITES OF MAN.

IN the volume entitled *The Animal Parasites of Man*[2] the subject is considered from the zoological point of view, and the writers are concerned mainly with the embryology, ontogeny, and morphology of a great variety of organisms. The book is partly adapted from the fourth edition of Max Braun's textbook, and this involves a somewhat awkward separation of some clinical notes, which are given in a supplement. Recent discoveries are, moreover, embodied in the addenda, so that it is not always easy to obtain any required information. The book falls into three sections, each the work of one of the adapters. The sections on the protozoa and the worms open with very full introductions to the group, explaining in detail any points which are capable of generalization.

Dr. FANTHAM'S account of the protozoa is perhaps the most successful part of the book, though he would have done well to cater for the medical man a little more fully, and so help to bridge the gap between parasitology and medicine. We should like to have seen tables of the differences between the various spirochaetes or the various protozoal cysts which may occur in faeces. Dr. Fantham is singularly fair in dealing with debatable points; we may instance his treatment of the chlamydozoa, or of Mr. McDonagh's life-history of the organism of syphilis. We remember, of course, that the existence of a granule stage in the life-cycle of the spirochaete is very widely accepted, and has been demonstrated in some half-dozen different species. It appears that about seventy-five

[2] *The Animal Parasites of Man.* By H. B. Fantham, M.A.Cantab., D.Sc.Lond., J. W. W. Stephens, M.D.Cantab., D.P.H., and F. V. Theobald, M.A.Cantab., F.E.S., Hon. F.R.H.S.; partly adapted from Dr. Max Braun's *Die Tierischen Parasiten des Menschen* (fourth edition, 1908), and an Appendix by Dr. Otto Seifert. London: J. Bale, Sons, and Danielsson, Ltd. 1916. (Roy. 8vo, pp. 932; 423 figures. 45s. net.)

protozoa have been known to occur in man, many of them very rarely, and as wanderers from some other host.

The account of the worms, to use an unscientific but convenient term, is by Professor STEPHENS. This part of the book is exceptionally well illustrated and full of detail. Helminthology is beyond the ken of the ordinary practitioner, who only knows three or four worms, and treats them rather empirically; nevertheless, the whole subject is fascinating in its complexity and full of biological problems, such as the meaning of "individuals," and the alternation of generations. Then, again, the life-histories of these organisms are frequently rendered intricate because the parasite must pass from one species of host to another in order to become mature. The work of the Grouse Commission or the labours of the various investigators of "hookworm disease," or Leiper's researches on *Schistosomum* (*Bilharzia*), make one realize what a vast amount of labour may go to the elucidation of even one life-cycle. We should also realize that a full knowledge of the bionomics of a parasite forms the only possible basis for prophylaxis, personal or racial. This book describes many worms known to have occurred in man frequently or rarely, but of which the life-history is unknown.

The section on Arthropods (mites, ticks, and insects) is by no means as good as the rest of the book. The adapter is known as an authority on the classification of the mosquitos, and probably he is at his best when dealing with questions of pure systematics. He is, perhaps, less happy in his treatment of biological points, and he deals inadequately with methods of control or prophylaxis. The three species of human lice are dealt with in a very disjointed manner, and no mention is made of the fact that *Pediculus* is the vector of typhus or Mediterranean relapsing fever, though it is stated that Sulla, Herod, Cardinal Dupet, Philip II, and others died of "louse disease."

The book is probably intended to be more zoological than medical; nevertheless, we wish it contained more matter of everyday clinical importance. To most of us, for instance, the egg of a worm is of more importance than its hooklets or its central nervous system.

The English into which the book is translated is never graceful and is occasionally obscure. The figures, many of them borrowed, are generally good, though only too frequently the magnification is not given. Typographical errors have not been entirely eliminated. The index is good and the bibliography beyond praise.

NOTES ON BOOKS.

A VOLUME on *General Surgery*[3] in the annual Practical Medicine Series contains in some forty sections an account of the progress made in surgery last year, from the American point of view. It contains much interesting reading for surgeons, and is well illustrated. As an example of the value of prophylactic treatment in tetanus, the editor, Dr. J. B. Murphy, whose death we had recently the sorrow to announce, notes that the septic wounds produced by the accidents incidental to the annual celebrations on July 4th resulted in 417 deaths from tetanus in 1903; in 1915, owing to the public appreciation of the value of timely treatment, there was but one such death. He also states that almost 20 per cent. of over 10,000 autopsies in cases of death from cancer showed no demonstrable metastases at all.

An admirably well-thought-out and useful little book on *Medical Reporting in Pitman's Shorthand*[4] has been produced by Mr. H. DICKINSON. It should be of special use to intending reporters of medical lectures and discussions, whose needs he had in mind when preparing it. It is always difficult to take down technical matter, and as it is certainly most desirable that strict accuracy should be attained the would-be reporter of medical subjects will do well to study Mr. Dickinson's book. It should also prove useful to any shorthand writer who thinks of seeking a post as secretary to a medical man. The book does not claim to be a medical shorthand dictionary of outlines, but it contains those phrases with which the aspirant to medical reporting should be familiar.

[3] *General Surgery.* Vol. ii. Edited by J. B. Murphy, A.M., M.D., LL.D., F.R.C.S.Eng.(Hon.), F.A.C.S. The Practical Medicine Series, under the General Editorial Charge of C. L. Mix, A.M., M.D.; Series 1916. Chicago: The Year Book Publishers. 1916. (Cr. 8vo, pp. 620; 49 plates; 222 figures.)

[4] *Medical Reporting in Pitman's Shorthand.* By H. Dickinson. London: Sir I. Pitman and Sons, Ltd.; Toronto: The Commercial Textbook Company. 1916. (Cr. 8vo, pp. 87. 3s. net.)

To those who want to learn how to make surgical bandages and dressings for the war we recommend the diagrams and descriptions of patterns designed and standardized by the surgical branch of the Central Dépôt of Queen Mary's Needlework Guild, compiled by ALICE SCOTT.[5] The full-sized work costs 3s. 6d., the abridged edition 1s.; all profits go to the Central Dépôt. The publication is most timely and serviceable, and we wish it the full measure of success it deserves.

A *Catalogue of the Pathological Museum of the Medical College, Calcutta*,[6] prepared by Dr. MCCONNELL, formerly professor of pathology and curator of the museum, and revised by the present occupant of those posts, Sir LEONARD ROGERS, has been issued in two volumes. This pathological museum is believed to have been the earliest established in a tropical country. It was founded in 1839, and began with some specimens collected within the twenty previous years by the Calcutta Medical and Physical Society. In 1843 the Calcutta Medical Board published an appeal to all medical officers in India, which was so successful that by 1848 the total number of specimens amounted to 2,000. The catalogue is published in a most convenient form, each volume being small and portable, whilst the type is large and clear. Though not so uniform as in catalogues where every specimen is described systemically after Paget's method, the letter-press appears to make the essential characteristics of each preparation quite clear by the use of capitals and Clarendon type. The series showing malformations of the intestine, entozoa, and calculi are very rich, while visceral disease, bone affections, and disorders of the circulatory system are well represented.

The *Textbook of Physics and Chemistry for Nurses*,[7] by Dr. BLISS and Mr. OLIVE, is a brave attempt to concentrate a mass of knowledge into pemmican for nurses. Magnetism and electricity are expounded in four pages, acoustics in one. Naphthalene is set down as one of "the benzenes," and its structural formula is given, with the information that it is also known as "coal-tar camphor," or "tar balls." The ash of sea-weeds is described as "vareel," perhaps an error for "varech"? The book is designed to contain only the amount of material that could "be intelligently digested by the average studious nurse in the time allotted to the subjects." Its appeal is more to the memory than to the intelligence.

[5] *Surgical Bandages, Dressings, and Slippers.* Diagrams by Alice Scott. London: P. Lund, Humphries and Co. 1916. (Cr. 4to, pp. 73; illustrated. 3s. 6d.)

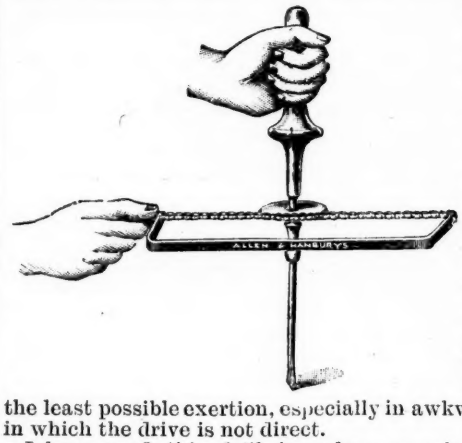
[6] *Catalogue of the Pathological Museum, Medical College, Calcutta.* By J. F. P. McConnell, M.B., M.C., M.R.C.S.Eng. Revised by Sir Leonard Rogers, M.D., F.R.C.P., B.S., F.R.C.S., I.M.S. In two volumes. Calcutta: Bengal Secretariat Book Dépôt. (Demy 8vo, pp. 486 and 464. Vol. I, £1 1s.; Vol. II, 18s. 9d.)

[7] *A Textbook of Physics and Chemistry for Nurses.* By A. R. Bliss, Jr., Ph.G., Ph.Ch., A.M., Phm.D., M.D., and A. H. Olive, A.M., Ph.Ch., Phm.D. Philadelphia and London: J. B. Lippincott Co. 1916. (Demy 8vo, pp. 253; 48 figures. 6s. net.)

MEDICAL AND SURGICAL APPLIANCES.

A Bone Drill.

MR. R. H. JOCELYN SWAN, M.S.Lond., F.R.C.S. (London, W.), writes: The accompanying drawing represents a bone drill which has been made for me by Messrs. Allen and Hanburys, Ltd., Wigmore Street, from a design by Dr. G. Ramsey Phillips. The drill is fitted into a chuck connected to a toothed wheel which is rotated by a chain stretched on a bow. The great advantage of the instrument consists in the ease with which even the hardest bone can be drilled with the least possible exertion, especially in awkward positions in which the drive is not direct.



I have used this drill in a large number of cases of bone-plating, and have found it greatly superior to any other design. It is easily cleaned, and the whole can be boiled for sterilization.

THE DELINEATION OF INTERNAL ORGANS BY AN ELECTRICAL METHOD.

THE manner in which the application of scientific methods to the medical work of the British Expeditionary Force in France is encouraged and the results obtained have been the subject of remark in various places, and several advances in medicine and surgery have already been recorded in these columns.

No public statement, however, has anywhere yet been made regarding a piece of work of an unusual and somewhat puzzling character, which has been in progress at one of the casualty clearing stations in France for several months; though very quietly performed, it has given rise to a host of rumours, surmises, and conflicting views.

The first subject that it brings into mind is *x*-ray photography, and the next is wireless telegraphy. It soon, however, becomes apparent that the work whatever its value has no relation to either of these methods.

The new work, in fact, appears to succeed just where *x*-ray photography fails, or, rather, it takes up the task of producing pictures of structures hidden far below the surface of the body just at the point where *x*-ray photography ceases to perform it effectively. In other words, the new work attempts the delineation not of dense structures such as bone, but of living soft organs, such as the liver, the kidneys, and the intestines.

That circumstance in itself is sufficient to confer on the work a good deal of attraction, but what may be regarded as of still more interest is that it may be conceived as utilizing the electricity which is believed to be generated in the body (and to some extent in all living tissues, vegetable as well as animal) as a concomitant of the performance of ordinary life processes.

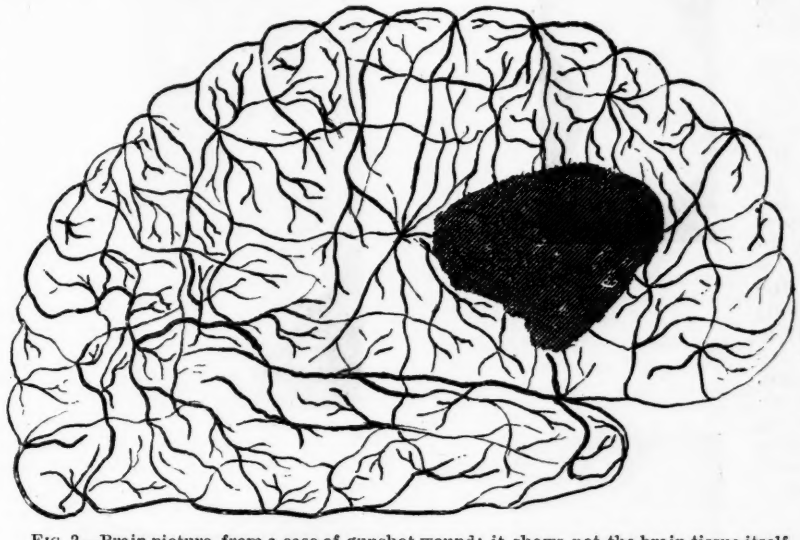


FIG. 2.—Brain picture, from a case of gunshot wound; it shows not the brain tissue itself (which, so far, it has not been found possible to delineate) but the blood vessels, and a large irregular patch, which is the site of the lesion. (This picture has for convenience been printed black on white. In the original the vessels showed white on a dark background, and near the middle of the patch was a small dark mark, which was believed to be a foreign body.)

This new work, therefore, presents so many points of interest that, whatever the importance it may hereafter be shown to possess, it is desirable to endeavour to give some account of it despite the facts that its theoretical basis is not easy to understand, that it is very far from complete in respect of technical detail, and that the extent of any usefulness it may prove to have in practice cannot yet be defined.

What the Work does.

What the work seems to do in its present stage is to enable it to be stated, without any manual or other examination, whether the more important viscera of a living patient—such as the liver, the kidneys, the spleen, and the brain—are intact so far as their gross anatomy is concerned, while at the same time it supplies evidence of any departure from the normal in the nature of a considerable enlargement or diminution in size, or an effusion of blood, or the presence of a foreign body, or the existence of a tear or cut of the visceral surface.

These things it does by providing pictures such as those here shown (see Figs. 1, 2, 3, 4, 5). One of these demonstrates a gunshot wound of the kidney; a second a gunshot wound of the brain; a third the caecum with inflammatory enlargement of the appendix; a fourth a piece of large intestine torn by a missile lodged in its lumen, and a fifth a traumatic abscess in the interior of the liver. All these pictures were obtained from living patients, and their accuracy was afterwards proved by a successful operation or otherwise.

It will be observed that they all present one common feature: the general outline is exceedingly clear, but no details are visible. The reason for this will be described later on.

The Visible Process.

The process of producing these pictures, as seen by the bystander, is very unimpressive. There is no darkening of rooms, no flashing of lights, and no crackling of spark-gaps. In fact, the whole proceeding is so brief, and seemingly so simple, that when the results are observed the first sensation is one of bewilderment.

A patient is laid on a plain deal table (insulated by standing it on glass), a little clicking is heard in a cupboard hard by, and after 60 seconds or so the bearers are directed to remove him. Nothing has been felt by the patient, little or nothing has been seen by the bystanders beyond what has been noted, yet a visible record of the outline of a living organ has been conveyed to a wax sheet. This is then printed on ordinary photographic sensitized paper by the employment of methods already familiar in several other connexions.

The Appliances Used.

If there is nothing impressive about the procedure itself, there is also nothing especially remarkable in the appliances employed. For the most part they are of quite a familiar kind. Some are kept in the cupboard mentioned, while the rest—namely, the electrodes and connected wires—are suspended in the room.

The main contents of the cupboard are seen to be two separate electrical batteries (Battery A and Battery B) of precisely equal strength, together with a means by which alternations in their currents can be produced and varied at will. The other contents include a revolving cylinder over which is suspended a needle hammer capable of side to side as well as up and down movement, the two together bearing a resemblance to a barograph. This cylinder carries a rolled sheet of paper treated with paraffin wax on which the outline of the organ under examination is initially recorded. The needle hammer mentioned is connected with a tiny circle of carbon like the diaphragm of a telephone machine, which is operated in its turn by a current detector capable not only of picking up and measuring, but also of concentrating currents too small to be convertible into force by any other means. The current in this particular case comes from the patient's body, arriving through a wire connected with one of the two electrodes mentioned as being seen outside the cupboard.

There are two of these electrodes each of which ends in a perforated zinc plate or zinc wire screen, which, is not placed in contact with the patient's body. One of these, hereinafter called Screen A, is about 18 inches broad by 12 deep, and stands vertically on a pedestal, which, being movable, can be put in the same plane as the patient's body and in its immediate vicinity.

The other electrode, Screen B, is about two-thirds the size of Screen A, and is held by wire supports (and movable along them) in the air in a horizontal position 4 or 5 feet above the centre of Screen A.

The primary result of this arrangement is that any electrical field emanating from Screen A is always at right

angles to that of Screen B. The fields themselves are respectively charged by the currents derived from the batteries A and B with their alternating interruptors.

Consequently it is open to the operator to choose at will the section of the body which shall be brought within the influence of the combined electrical fields, as also the plane of the body which the lines of force in Field A shall effect.

The appliances used have now been described so far as is possible without going into minute details, but one further point must still be mentioned. At given instants of time during the operation of the appliances the current in electrode B is very unstable, consequently it has placed around it a wire coil, which insulates it from atmospheric electricity.

The Method of Operation.

The machinery thus described is operated as follows:

The first step is to place the patient in the right position in relation to the two screens. He must be quite close and head on to the vertical Screen A, and the organ to be examined must be directly under Screen B, though at a considerable distance from it, and at the same time present the desired plane towards Screen A.

FIG. 1.

The right position having been secured the following steps are taken: (1) An intact wax sheet is put upon the recording cylinder; (2) the rate at which the cylinder shall revolve is determined; (3) the appliance which regulates the rapidity of the alternations is adjusted; (4) the currents from batteries A and B are simultaneously released, with the immediate result that the recording cylinder begins to revolve while the hammer needle moves across it steadily, giving rise at each stroke to a slight click. This movement of the needle is allowed to continue until it has twice traversed the cylinder from end to end, and the currents are then cut off.

What has happened in the meantime is that the current from battery A has reached electrode A, and has thence been projected horizontally from all parts of Screen A as an electric field. The same thing has happened in regard to the current from battery B, but the direction of the field projecting from Screen B has been vertically downwards.

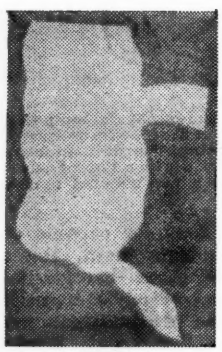


FIG. 3.

What has also happened is that the two fields have met at right angles, and as they are of precisely equal strength, and are synchronized in respect of alternations, it might be expected that they would have precisely neutralized one another, and that consequently no exhibition of dynamic force would be obtainable from them.

But in practice this is not what occurs. On the contrary, provided that the body under examination is that of a living person (or is one in which merely somatic, not cellular, death has occurred), an effective current from below always manages to reach electrode B and thence passes to the detector mentioned as being among the apparatus in the cupboard.

The result, therefore, has been that the hammer needle mentioned has been put into operation and has tapped out on the revolving wax sheet below it a diagram which precisely resembles the outline of the living tissues lying vertically below Screen B.

This diagram can be discerned forthwith by holding the wax film against a strong light, and can be converted into an ordinary photograph such as those here shown by processes of a type quite familiar in various applied arts.

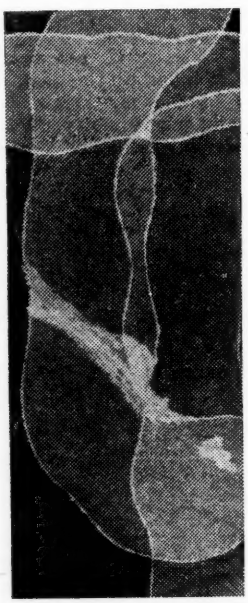


FIG. 4.

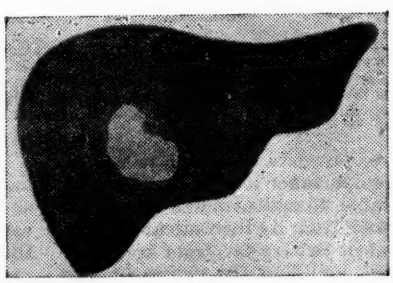


FIG. 5.

The Underlying Principle.

So far this account has been confined to a description of the results obtained and the machinery employed. The why and wherefore of the whole process, or rather, the underlying facts, are quite another matter.

When the results are compared with the visible means by which they are reached, they seem at first quite incomprehensible, if not incredible. It is certain, however, that they can be and are obtained, so it only remains to endeavour to account for them. The inventor, it was gathered, believes that the results are primarily due to the fact that the process interposes between two alternating electric fields of equal strength—and at the precise point where they meet—a third electric field, whose facultative potential force is thus released and can be converted into dynamic power. It is this released circuit which operates the recording needle, and the pattern tapped out on the revolving cylinder varies with the shape of the organ furnishing that circuit.

The foregoing is one legitimate way of summarizing the inventor's view in simple language. Another would be to say that the force operating the needle is the balance of current which remains after the horizontal current from electrode A, reinforced by the electricity contained in the organ through which it has

DESCRIPTIONS OF FIGURES 1, 3, 4, AND 5.

FIG. 1.—Picture of the kidney, from a case of gunshot wound (? of the back). The patient presented symptoms pointing to injury of the kidney. The picture was interpreted to indicate a wound of the lower part of the kidney. Laparotomy was performed, and the injured kidney removed. The patient recovered.

FIG. 3.—Picture of the caecum and appendix. The patient had a clear history of recurrent appendicitis, and the clinical picture was that of another attack. In the opinion of the surgical specialist there was absolute correspondence between the clinical diagnosis and the condition delineated in the picture. An operation was to have been performed, but an ambulance train arrived, and as there was no urgency about the operation the patient was sent down, and the subsequent history is not known. In the appendix may be seen an irregular white mark, which the surgical specialist believed to be a concretion.

FIG. 4.—Injured intestine. This picture shows a portion of the large intestine crossed in two directions by a fold of small intestine believed to be lying behind it. In the lumen of the large intestine is a light spot, which represents a foreign body. The wound by which it entered the intestine is shown by the oblique white track leading down towards it. The patient died before an operation could be performed. The correctness of the picture was confirmed on *post-mortem* examination.

FIG. 5.—Picture of the liver. This man was wounded in the axilla. He was found to be tender over the lower ribs. The outline of the liver is shown, and in the middle a light patch, believed to be pus, surrounding a foreign body. The case had not been operated upon at the time this report was made.

passed, has met the descending current emanating from electrode B.

However the inventor's view be expressed, it involves the supposition that every organ in the body constitutes and originates a separate electric field, and that the facultative dynamic power of this field, as also its shape, varies precisely with the constitution and shape of each organ in question.

The explanation here given may be insufficient to account for all the results, or even to be in direct conflict with accepted views concerning body electricity. But, after all, very little is at present known concerning organic tissues as a source of electrical force, and in any case the fact remains that it is on this theory that the inventor and originator of the process has worked out his discovery and is at present endeavouring to perfect it in respect of mechanical details.

While the greater part of the process has been developed by constructing a novel theory and converting it into a practice, a good many of the results so far obtained are due to experiment. It has been found, for instance, that the appliances must be tuned for different organs and different tissues.

In other words, the rate of alternations in the currents, and therefore the force of each electrical impulsive, must be varied according to the rate of vibration of the tissue molecules. Thus the electrical force residing in blood is very small; so, when blood vessels are to be delineated, the alternations must be very rapid. Contrariwise, since the electric force residing in heart muscle is great, the alternations must be slow when a heart is to be delineated.

The foregoing circumstance is the reason why the pictures shown in this article are so devoid of detail. In other words, the process, so far as it has at present been developed, never delineates more than one type of tissue on the same occasion, and the speed required for some tissues has not yet been learnt. This fact, however, can hardly be regarded as a total disadvantage, for from the surgical point of view it helps to make the discovery of immediate value. Take, for instance, the picture of a kidney here shown, or that of a liver. In the one case the instrument was tuned for kidney tissue, and in the other for liver, and in neither for blood or pus; consequently the outline of the two organs is shown quite clearly, and the effusion is represented by a patch of different tint.

So far we have not mentioned the discoverer's name. It is James Shearer, aged 30, at present a sergeant in the Royal Army Medical Corps working at a casualty clearing station. By birth he is a Scotsman, but he received his later education in America, where he graduated M.D., Ch.M. at the University of Washington, D.C., in 1907. On his joining the R.A.M.C. he could not be given a commission, as the medical degree he holds is not one of those recognized in Great Britain, but as soon as it was found that he was possessed of special electrical knowledge, and believed that he saw a way in which it could be utilized for the purposes of the war, he was given opportunities of developing his ideas by the commanding officer of the hospital of his unit (Lieutenant-Colonel Clements), with the approval of the Director-General of the Medical Services in France, Sir Arthur Sloggett.

SIGHT TESTS FOR THE BRITISH ARMY.

THERE is much to be said for and against the standards of vision adopted in the British army, to which reference was made in the BRITISH MEDICAL JOURNAL for September 16th, 1916. Since that note was published we have received some further information, which will be read with interest, since it describes the working of the military ophthalmic centres now established in this country.

"Ophthalmic centres" were established at the commencement of the present year at important stations in the various commands. Medical officers with ophthalmological experience were placed in charge of these centres with varying duties, according to the character of the station. If the centre happened to be the head quarters of a recruiting area the officer in charge became the referee of the recruiting medical board, to whom all cases below the official standard, or any which seemed to call for consideration from the ophthalmic standpoint, would be referred.

Each centre is attached to some military hospital, and the officer in charge of the centre acts as the ophthalmic surgeon of the hospital, the nature of his practice varying according to the suitability or otherwise of the hospital for operative work. Besides this he acts as consultant to the troops within a certain area, and sees cases referred to him by the medical officers in charge of the troops, supplying spectacles where needed by an admirable system which is working well.

The previous note in the BRITISH MEDICAL JOURNAL alluded to the possibility of unsuitable cases getting into the army and of suitable cases being excluded. These two points may be dealt with separately.

(*a*) *Enlistment of Unsuitable Cases.*—The cases of enlisted men who have found their way into eye hospitals at home with "high hypermetropia," "cataract," "retinitis pigmentosa," and "extensive choroiditis" are probably in the main those who entered the service before the present ophthalmic centres came into being. Except in those cases in which a man deliberately attempts to conceal his ailments (a very rare event at the present time), there ought to be little possibility of such mistakes occurring. All cases below the standard must be referred to the ophthalmic consultant to the board, and also any cases which seem to the examining members of the board to be doubtful, or in which the recruit makes any special complaint—as, for instance, of night-blindness, or some recurring affection such as iritis or corneal ulcers. Should a mistake have been made, the categories into which a man is placed by the recruiting medical boards only determine his initial sphere of training, or the special branch of the service to which he may at first be allotted. The army in training is continually under the supervision of travelling medical boards, who from time to time revise these categories.

(*b*) *Exclusion of Suitable Cases.*—The categories of the medical board lower than that for so-called general service do not seem to be generally understood. It is not necessary to define the many branches of the service which are open to spectacle wearers who are below the official standard for general service, but the prospects before such men are excellent if their vision can be suitably corrected, and if it should be decided at any time to send these men even into the trenches on the Western front this could be done as the men would be already under training.

The existing system for supplying spectacles to the troops works somewhat as follows: When a man commences his training visual defects should early be recognized by his officers, especially when he commences "firing." He is then referred to the medical officer of his regiment, who sends him, if he thinks necessary, to the nearest ophthalmic centre, as also if the man of his own accord complains of his eyes. When he arrives at the centre the officer in charge examines him, and if he considers that glasses are necessary a prescription is made out on the forms provided for the purpose, and measurements for frames are made by the optician attached to the centre who has enlisted in the R.A.M.C. The prescription is then sent up to the Army Spectacle Department, and in a few days an excellent pair of spectacles reaches the soldier, proper means being adopted to secure that the spectacles are satisfactory, and for the registration of the prescription.

E. P. QUAIN (*Surg., Gynaec., and Obstet.*, July, 1916) has collected 127 cases of rupture of bladder and fracture of pelvis with 34 recoveries. This is a mortality of 74 per cent.; 83 were reported before and 44 since 1890. Of the early 83 cases 11 recovered, a mortality of 86.7 per cent.; of the later 44 cases 23 recovered, so that the mortality was under 48 per cent. Quain shows a further proof of the increasing efficiency of treatment in this class of injuries by noting that out of 21 cases which occurred since 1905 only 8 died, a mortality of 38 per cent., but he adds an important qualification. The earlier series were taken largely from official autopsy notes, while the later cases were gleaned mostly from independent papers, and there is a tendency to report successful cases more readily than unsuccessful. The total mortality in all varieties of bladder ruptures with or without the complication in question or any other coincident injury is less than 25 per cent. In other words, fracture of the pelvis is the most serious complication of a ruptured bladder.

British Medical Journal.

SATURDAY, SEPTEMBER 30TH, 1916.

DOCTORS AS MEN OF ACTION.

AT the present time, when the lawyer plays so large a part in public life, it may not be amiss to point out that a medical training, better perhaps than any other kind of professional education, fits a man for the most diverse spheres of activity. This is to be attributed to the breadth of outlook which is a natural product of the scientific study of medicine, but still more to the combination of rapid and accurate observation with swift decision engendered and developed by the emergencies that arise in medical practice. A doctor must be the exact opposite of the famous politician described by Carlyle as an "almost spectral kind of phantasm of a man . . . incapable of seeing veritably any fact whatever, but seeing, crediting, and laying to heart the mere clothes of the fact and fancying that all the rest does not exist."

The clear vision of fact and the promptness in action which are necessary in a doctor mark him out as a leader of men when a new field of enterprise opens up before him. It is not surprising, therefore, that so many who have begun as disciples of Aesculapius have, when the opportunity came to them, done signal service as explorers, administrators, governors of colonies, political officers, leaders of parties, and ministers of State. We need only mention the names of Mungo Park, David Livingstone, John Kirk, James Logan Campbell, Charles Tupper, Rutherford Alcock, Halliday Macartney, Robert Bredon, William MacGregor, Starr Jameson, and George Scott Robertson. To medical men is due the creation of the Forests, Post Office, Mints, Geology, and Telegraph Departments in India. Two doctors, George Clemenceau and Emile Combes, have within the last twenty years been Prime Ministers of France. In Germany Rudolf Virchow was for a long time the leader of the Liberal party; in Italy Baccelli was a power in the State as well as a conspicuous figure in the medical profession; in Portugal medical men—notably Affonso Costa, Antonio José d'Almeida, and Brito Camacho—have in recent years played a prominent part in the revolutionary movement and in the government of the country.

There is one field of action in which the doctor has been less conspicuous as a leader. Although he has everywhere won admiration by the calm courage with which he has done his duty in the face of death, he has not often exchanged the scalpel for the sword. But when he has done so, he has proved his fitness for what might seem an uncongenial calling. We need only recall the career of Major-General Leonard Wood, who, entering the United States army as a contract surgeon, became Colonel of the regiment of Rough Riders which covered itself with glory in Cuba. After the battle of San Juan he was appointed Military Governor of Santiago, then one of the foulest cities on earth. In him was centred the whole machinery of civil and military government. He united in his own person the offices of governor, judge, financial officer, school superintendent, health commissioner, water commissioner, and street commissioner. He not only cleansed the Augean stables of Santiago in a hygienic sense, but reformed all manner of administrative and other abuses. Later he was Governor-General of Cuba, and took the leading part in the reorganization of the government of the island, the establishment of schools, and the solution of vital sanitary problems. Accounts of his work were given in the BRITISH MEDICAL JOURNAL of April 22nd, 1899 (p. 973), and January 31st, 1903 (p. 271). In 1908 President Roosevelt promoted him to the rank of Major-General, and in 1910 he was appointed Chief of the Staff of the United States army. General Wood, who is now in command of the Eastern Department, is the leader in the movement for adequate national defence, and is regarded as the best soldier in the States. The position he has gained among his countrymen is shown by the fact that he is mentioned by the Washington correspondent of the *Times* as one of the "possibilities" for the Presidency. It is an interesting coincidence that Major-General F. C. Ainsworth, his second in command when he was Chief of the Staff, was also a doctor of medicine.

Dr. H. Raymondaud tells, in *Paris Médical* of April 1st, the story of two French army doctors who rose to high rank in the fighting force. Jean Pierre Joseph Bruyère was born in 1772 and served in the campaign of Italy as a surgeon of the first class. Preferring arms to the doctor's gown, he obtained, through the influence of Larrey, a captain's commission. He was a first-class fighting man and promotion was rapid. As colonel of the 23rd Chasseurs he went through the campaigns of 1805 and 1806, being made brigadier-general after the battle of Jena. He was created a baron of the Empire in 1808 and a count in 1811. As a general of division he commanded Masséna's light cavalry in the Russian campaign in 1812. He was a man of impetuous valour, and was wounded at Eylau, Wagram, and Moscow, finally dying after amputation through both thighs at the battle of Bautzen in 1813. The other, Jean Baptiste Rusca, was born in 1759, and served as a medical officer in the army of Italy in 1793. In that campaign he was given a combatant commission, and for his conduct at Loasso he was made a brigadier-general on the field of battle. He was promoted general of division in 1799. He was severely wounded at Lodi, and again at Trebbia. In 1801 he was in command of the island of Elba. In 1814 he was killed on the ramparts of Soissons, being then at the head of a division of the National Guards.

Paul Triaire, in *Dominique Larrey et les campagnes de la Révolution et de l'Empire*, mentions Colonel Lawless of the Scottish Legion, "a learned physician who had been professor of physiology in the University of Dublin." His taste for soldiering and his hatred of England led him to take service as a combatant under Napoleon. He was wounded at Kulm in 1813, and Larrey amputated his leg below the knee. Lawless, who as a doctor knew the dangers of the hospitals of that time, mounted his horse immediately after the operation and rode straight to Mayence where the first dressing was taken off. Thence he made his way to France, arriving there in good condition without any fresh dressing. Marbot in his *Mémoires* mentions Captain Fournier, adjutant-major to General Morland, commander of the *chasseurs à cheval* of the Imperial Guard. He had entered the army as a surgeon, but through Morland's influence obtained a combatant commission, and was killed with his chief at Austerlitz.

It may not be out of place to mention a famous instance of the opposite conversion. Thomas Sydenham, whom Gideon Harvey called "a trooper turned

physician," served on the Parliamentary side in both Civil Wars. In the first he left his studies, which he had just begun at Oxford, to take up the sword. In the second he was a captain of horse when he was a Bachelor of Medicine of Oxford, and in Scotland he acted in both capacities, physicking his men as well as leading them in action.

THE MEDICAL SERVICE IN THE NEW ADVANCE.

THE general effect of the advance made by the British troops on the Somme on September 15th and 16th and following days was to carry the line from where it had been left by the operations at the beginning of July forward for an average of between two and three miles, but to leave two deep indentations, one at Combles, near the middle of the line of advance, and the other at Thiepval, at its north-western end. The advance made on September 25th and 26th obliterated these two indentations and straightened out the line, which was at the same time advanced generally for perhaps about half a mile. One result of these recent advances will have been to put the medical arrangements as to field ambulances and casualty clearing stations, established after the earlier operations, somewhat out of date, and to render new dispositions necessary. Everything was in readiness, and, in fact, we believe that a number of casualty clearing stations had been brought up in anticipation of what has now happened, and placed in advance of those which bore the brunt of the work at the beginning of July. Field ambulances and advanced dressing stations were also, of course, pushed forward. Even so, the battalions in action must soon have got so far away from these stations that the task of carrying a man back from where he had fallen to these stations must have meant in some cases a heavy carry. Though this was the case, the nature and lie of the ground make it certain that the advanced dressing stations were under heavy fire during most of the time, as also the roads leading to the rear along which the wounded must have been evacuated. The extreme wetness of the weather during the greater part of the first three or four days; the scarcity of anything like real roads, many of those in the newly occupied area being little better than farm tracks; the general character of the terrain, and the depth to which the enemy's lines were penetrated must have made the difficulties of evacuation on this occasion greater than in the July push. Nevertheless, evacuation from the actual fighting line to the main dressing stations from the divisions and corps engaged was, we understand, conducted with rapidity and steadiness. From the main dressing stations to the casualty clearing stations chiefly employed the distance to be traversed was practically the same as in July, owing to the clearing stations having been pushed up. The personnel of these units had been strengthened by additional medical officers, orderlies, and nurses, and there was not anywhere any blockage. The men were loaded on to the ambulance cars, brought down rapidly, and quickly unloaded at the casualty clearing stations; there a great deal of hard and willing work was put in by all concerned, so that those wounded men who were fit to be evacuated to the base were very soon ready to be loaded into the ambulance trains which had been sent up to carry them down to the base. There seems to be reason to believe that the total number of casualties with which the advanced medical formations had to deal was not as large as was expected, although it included a considerable proportion of wounded Germans. Among our own men there was a large proportion of light cases. There was a threatening some weeks ago that gas gangrene might become more frequent, as happened at other parts of the front last year. Such cases as were observed during the Somme advances occurred chiefly in men who had been left out for some time owing either to the fact that they could not be reached or that they were hidden in some trench. During the recent advance cases of this serious complication have, we understand, been relatively rare.

All accounts agree in stating that the men themselves were curiously cheerful, and evidence of severe suffering was not often observed. The word "curiously" is often used in this connexion, but it is fully justified, because if a man has been working strenuously with head and body for hours at a time, has been more or less wet through for days, and then has a bullet through his arm or leg, with, perhaps, two or three minor injuries in addition, a certain amount of depression and gloominess in his aspect would not be surprising. However, the British soldier has always taken such misfortunes with a cheerful spirit, and his knowledge that the advance was being successfully pushed forward no doubt contributed to this attitude of mind, and will eventually contribute to his more speedy cure.

PREVENTION OF TRI-NITRO-TOLUOL POISONING.

IT may be remembered that some time ago we gave an account of a memorandum on Special Industrial Diseases, prepared by the Health of Munition Workers Committee and issued by the Ministry of Munitions.[1] It dealt, among other matters, with disorders produced in workers by various explosives, and indicated preventive measures which should be taken. The most important of these explosives seems to be tri-nitro-toluol (T.N.T.). Operatives employed in its manufacture and in loading it, either pure or mixed with other substances, into munitions, have been found affected with unusual drowsiness, frontal headache, eczema, and loss of appetite. In exceptional cases sudden collapse might occur after a few hours' work on a hot day, but generally the symptoms were at first slight, and, if exposure ceased, quickly disappeared; if the exposure were continued the symptoms tended to become more severe and might be associated with cyanosis, dyspnoea, palpitation, rapid weak pulse, constipation, vomiting, anaemia, pains in the limbs, and jaundice and bile-stained urine. In a few cases profound jaundice supervened, and death had been known to result. In one case quoted, the woman who died was aged 22 years, and had been exposed during about five weeks' employment in a munitions work to dust generated in manipulating a powder containing a moderate amount of tri-nitro-toluol. It appeared that she often left her home, which was five miles from the factory, without sufficient food, at 4.45 a.m., and that no adequate provision was made for her to take food on arrival before commencing work at 6 a.m. At this factory several other cases of illness occurred, and it was found that washing conveniences were primitive, cloakroom and overall accommodation inadequate, and personal supervision insufficient. The Committee pointed out that as the action of the poison, though progressive, was slow, precautions could be taken. In particular

[1] Health of Munition Workers Committee, Memorandum No. 8, Special Industrial Diseases. (Cd. 8214.) H.M. Stationery Office. Price 1d.

it was said that periodical medical examination of the workers, with power to suspend from employment any affected person, could be arranged; and it was stated that where this had already been done beneficial results had been observed.

The Ministry of Munitions has now issued a series of regulations for factories in which T.N.T. and other poisonous explosives are manipulated. The regulations apply to all the factories concerned which are engaged on work for the Ministry of Munitions. One regulation directs that a medical officer shall be appointed to examine every worker once in every fortnight, as well as workers referred to him at other times as needing special examination. Another regulation requires the appointment of a woman welfare supervisor at all factories in which women are employed. Every worker must be required to wear a suitable costume, which must be washed or renewed at least once in each week, and may with advantage be cleaned daily in a vacuum cleaner. The employer is responsible for the washing and repair of the costumes, and the costumes of workers manipulating T.N.T. must be kept apart from workers not so employed. Washing accommodation for workers must be provided in accordance with the standard adopted in regulations made by the Home Office under the Factory and Workshop Act. There must be an adequate supply of suitable soap and a separate towel provided for each worker daily. Every factory must have a canteen, at which must be available hot meals of a suitable character and price. At the works food must be consumed only in the canteen or other approved place, and every worker must be supplied daily at the expense of the employer with one pint of milk, or cocoa made with milk. So much for the regulations as they affect personal hygiene and health; and it is fair to expect that in carrying them out the employer, the medical officer, and the woman welfare supervisor shall have the intelligent co-operation of the workers.

As for the regulations dealing with the special precautions taken to prevent atmospheric poisoning, the employer is required to take all practicable means to prevent the accumulation, production, and dispersion of dust; and the operations of filling T.N.T. bags must be isolated from other operations. Further, wherever practicable, no person shall be in any workplace where exploder bags are filled, or blocks are pressed, for more than a fortnight without a corresponding period in work not involving contact with T.N.T. or other poisonous dusts.

The regulations seem well adapted to attain the end in view, and there can be no doubt that the work done by the Health of Munition Workers Committee has been very valuable. Medical officers to munition works may be glad to be reminded that the Committee has issued a series of memorandums discussing a variety of topics related to the maintenance of the health of munition workers, including such subjects as industrial fatigue, hours of work, employment of women, welfare supervision, and the construction and organization of canteens. In one memorandum on sickness and injury, which contains a general discussion, the Committee states that it has received evidence and reports from all parts of the country showing the economic and industrial value of the proper organization of a medical service within the factory, and was convinced that adequate schemes of treatment, especially of minor injuries, were an important means of preventing loss of time and inefficiency among the workers. The Committee, therefore, recommended that provision for organized treatment should be made in every munition factory.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

THE annual report for 1915 of the chief medical officer of the Board of Education[1] is a volume of less than one-half the usual number of pages, but it presents special features of interest. The war has caused a reduction of the normal medical staff, and it has affected the attendance of children at the schools. Early in the war the Board circularized the local authorities regarding the liberation of their medical officers for war work, and the new report gives an account of action taken at the suggestion of the Central Medical War Committee to set free still more men. The plan of work now in force allows the suspension, in whole or part, of the prescribed routine medical inspection of the groups of children, but provision is everywhere being made for the medical inspection of children of all ages who appear to be ailing, and for the maintenance, as far as practicable, of the forms of treatment hitherto carried out in the area under the authority's scheme. The returns for January, 1916, show a decrease in the age groups 12–13, 13–14, and 14–15 of 45,000 children, as compared with the ratio of the last ten years. In addition, 15,000 have been exempt for agricultural work. These figures take no account of work done out of school hours or by half-timers. The extension of juvenile employment owing to the war has caused some concern to the department. The number of exemptions from school attendance for agricultural work is large, and it is said that in some areas they have been given too freely and without sufficiently careful ascertainment of the conditions of exemption prescribed. Some medical officers state that a considerable amount of overwork and consequent strain and fatigue has been entailed by employment out of school hours, and that children have shown signs of apathy, inattention, or somnolence in school, apparently attributable to this employment. Early entry into work means the loss of training at a time when it is just beginning to take effect on the young mind, and involves a physical strain youth is not calculated to bear. The report adds: "There is good reason to believe that in many areas the physical condition of the child thus employed is receiving the careful attention of the staff of the school medical service."

POISONING BY PRUSSIC ACID FUMES.

FUMIGATION with hydrocyanic acid gas for the destruction of vermin has been extensively used in India, the United States of America, and South Africa. The usual method adopted is to pour into a dish in the centre of the room to be dealt with measured quantities of sulphuric acid and water, adding the potassium cyanide at arm's length, and rushing from the room with all possible speed. The manipulator must wear rubber gloves or some other protection, or otherwise poisoning by the cyanide itself would almost certainly result. The gas is rather inflammable, and very quickly fatal when even one whiff of the strong vapour is taken. It is surprising that there have not been many more accidents with this very risky proceeding, and still more surprising are the recoveries. Dr. B. Cohen, who had the opportunity of attending two cases of poisoning by prussic acid fumes within a short time of the accidents, has recorded in a brief but important note the appearances found.[2] In his first case, a man accustomed to this method of fumigation incautiously reopened the door of the closed room on hearing the cry of a cat within. He must have been immediately overcome, for he was found shortly afterwards, by dwellers in the house who detected the faint smell of the gas, lying limp and insensible in front of the door with his head away from the direct line of fumes. When carried out into the open air he was found to be perfectly flaccid, with face and lips deeply suffused pink. Breathing was so slow that the bystanders thought it had

[1] H.M. Stationery Office. Price 9d.
[2] *S. A. Med. Rec.*, February 12th, 1916.

stopped. Dr. Cohen used artificial respiration, and in a few minutes the breathing became very noisy, with froth appearing in the mouth; the pupils were widely dilated and fixed; no odour of prussic acid was detected from the breath; neither urine nor faeces was passed; the pupils shortly afterwards became smaller and reacted to light, and the conjunctival reflex returned. The apparent improvement did not last long, for the teeth became clenched, the pupils dilated, the fingers, wrists, and elbows successively became flexed, and the arms moved convulsively; the left leg was drawn up, general convulsive movements ensued ending in muscular rigidity, and the pulse became small and weak. When the attack subsided the pupils reacted to light, and the conjunctival reflex became very active. A second attack resembled the first but was quicker in onset, more severe, and the duration of the convulsions longer. The third attack came within a few seconds after his teeth were clenched. The rigidity raised the body off the floor, and when it subsided the pulse was almost imperceptible and the respirations were shallow. The face grew ashen grey, and the patient appeared to be dying of heart failure. He was made to inhale aromatic ammonia, and $\frac{1}{500}$ grain of strophanthin was injected subcutaneously. Within a few minutes he improved. From the time of the accident till the time of the third attack barely one and a half hours elapsed. The patient improved steadily but remained drowsy. Fourteen hours after the poisoning, and after he had had a good sleep, he had quite recovered save for some temporary impediment to his speech. The second case occurred in a man who was in the direct current of vapour from an imperfectly sealed room that was being fumigated. Seen twenty minutes afterwards he was found to have lost control of his legs; his face was suffused pink, there were general tremors, pulse thready and numbering 140 to the minute, respirations deep, but he was quite conscious. Along with the flushings the patient had a sense of impending dissolution and a burning sensation in the eyes. The injection of strophanthin quieted the pulse. The manner in which the poison kills is not definitely decided. The pink colour of the face in conjunction with a practical cessation of respiration, as seen in the first case, may be explained on the view that prussic acid limits or prevents internal respiration. The tissues are directly acted on, and are prevented from using the oxygen of the blood and giving up carbon dioxide. The redness of the face would then be due to this, and not to a special compound of haemoglobin and hydrocyanic acid. The dilatation of the blood vessels probably contributes. Whether the respiratory centre is directly affected by the blood or indirectly by the interference with internal respiration, the proper treatment at the beginning is to perform artificial respiration, not only to maintain respiration, but also to eliminate hydrocyanic acid by the lungs. The convulsions and rigidity would throw an undue strain on the large veins and on the right side of the heart, as was shown by the slow, weak pulse and the immediate improvement after the administration of strophanthin. Venesection was formerly recommended for this condition, but probably the right heart may be eased as well and contractility stimulated by vigorous artificial respiration.

INJURIES OF NERVES.

DURING the present war a vast amount of information about injuries of nerves, their diagnosis, prognosis, and treatment, has been brought together in France, particularly by the Neurological Society of Paris. Dr. Tinel has selected the best part of it all, and has recently published an excellent account of the signs, symptoms, and diagnosis of nervous injuries.[1] The means of diagnosing functional from organic disease of the peripheral nerves are discussed at full length, and the indications for the operative relief of those nervous lesions that are amenable to surgical treatment are set out in detail. In an introductory note Professor Dejerine points out the need for the collaboration of physicians and surgeons in many of these cases, and the importance of making precise anatomical diagnoses in every instance of trauma or gunshot wounds of nerves. It is estimated that from 18 to 20 per cent. of the men wounded in the limbs have more or less important injuries of the nerve trunks; the percentage is far higher if the cases of slight trauma are eliminated from the reckoning. Dr. Tinel's essay is divided into three parts. The first gives a detailed account of the general examination for a diagnosis of injuries to nerves, and the second contains a mass of clinical information about cases involving either the arm or the leg. The third part is brief, and consists of an excellent summary on the subject of the prognosis and treatment of injuries of nerves. Dr. Tinel estimates that spontaneous recovery takes place in from 60 to 70 per cent. of the patients, although in 10 or 20 per cent. surgical intervention would have quickened the process of cure. Surgical operation for the suture of a divided peripheral nerve, or for its liberation from the grip of cicatricial tissue, is required in 30 or 40 per cent. of the cases. The suture of divided nerves should give satisfactory results in from 85 to 88 per cent. of the instances to which it is applied; the results are better if the surgical interference takes place early, but may be good even twelve or fifteen months after the receipt of the injury. Restoration of function after the suture of a nerve is necessarily slow, because, even under favourable conditions and in young subjects, the regeneration of the cut axis cylinder processes takes place at a rate of only 1 or 2 mm. a day. Dr. Tinel writes clearly, and has reproduced a number of photographs of patients and delineated schemes of nerve supplies. The information he has collected will be of particular interest to those who have to deal with wounded soldiers from the seat of war.

[1] *Les blessures des nerfs : Sémiologie des lésions nerveuses périphériques par blessures de guerre.* Par J. Tinel. Préface du Prof. J. Dejerine. Paris: Masson et Cie. 1916. (Roy. 8vo, pp. 319; 323 figures. Fr. 12.50.)

SYPHILIS OF THE SPINE.

SYPHILITIC disease of the vertebral column is usually regarded as a rare condition, and has received little attention in the textbooks. However, according to investigations recently carried out by Whitney and Baldwin[1] of San Francisco, the vertebral joints are far more commonly affected by syphilis than any others. Out of 100 cases of syphilis examined, only 26 were found to have perfectly normal spines. These observers distinguish two types of syphilitic arthritis, the toxic and the infectious. The toxic type resembles arthritis deformans, showing hypertrophic and villous lesions, and sometimes atrophic changes. Usually many joints are affected, those of the spine being among the most frequent. In such cases the spine is more or less uniformly stiff, and the characteristic osteophytes of hypertrophic joint disease are revealed by the *x* rays. The infectious type of arthritis includes two forms—the one destructive, due to gummatous osteitis of the vertebrae, closely resembling tuberculosis in its clinical featuress, the so-called syphilitic Pott's disease; the other a synovitis without destructive change. Special attention is directed to the latter form, since it has not been sufficiently recognized. The condition is described as affecting the synovial membranes of several vertebral joints, usually only a few, leading to diminished mobility from spasm, and afterwards to adhesions, which may cause complete fixation. These adhesions are said to be uninfluenced by antisyphilitic treatment, but may be broken down by forcible manipulation. When stiffness occurs, either from spasm or from adhesions, a deformity may be produced which may be mistaken for Pott's disease. This vertebral synovitis is

[1] *Journ. Amer. Med. Assoc.*, December 4th, 1915.

a comparatively early manifestation, but on account of the persistence of adhesions the deformity and stiffness may be found in old cases of syphilis with no other signs of the disease and a negative Wassermann reaction. It may, therefore, have some diagnostic value. A characteristic feature of these cases is said to be hypotonicity of the muscles and ligaments of the unaffected portions of the spine, especially the sacro-iliac joints, so that the patient can often touch the floor while keeping the knees straight, in spite of the localized stiffness. Pain is not so prominent a symptom as in tuberculosis of the spine. Although, in accordance with custom, the Wassermann reaction was resorted to in the diagnosis of these cases, the authors dissent from the view that this reaction is the deciding factor, and are of opinion that many cases of bone and joint syphilis give a negative reaction.

CONGENITAL GOITRE IN GOATS.

During the last twelve years Major Robert McCarrison, I.M.S., has published a large amount of interesting and highly valuable original work on the causation of goitre. In 1913 he delivered the Milroy lectures at the Royal College of Physicians, choosing as his subject the etiology of endemic goitre; an account of these lectures and some others of his publications on the subject will be found in the British Medical Journal of March 7th, 1914, p. 538. Quite recently he has reported[1] the results of his experiments on the production of congenital goitre in the goat, carried out at the Central Research Institute, Kasauli, India, in the years 1913 and 1914. As is well known, his view is that endemic goitre in human beings in India is an infective condition, due to a *contagium vivum* of unknown morphology that has its habitat in the alimentary tract. He has shown that a similar disease can occur in white rats, and that nearly two-thirds of the offspring of goitrous white rats are born with congenital goitre; this goitre is due to the action on the fetal thyroid gland of toxic substances derived from the maternal intestine. The research now reported is a continuation of the same line of work, with goats as the experimental animals instead of white rats. Its methods and results may be summarized as follows: Twelve healthy female Punjabi goats were penned and stabled together, rendered goitrous by the administration of cultures of microbes grown from the faeces of goitrous individuals, and covered by a healthy male imported from a non-goitrous locality. Eleven of the twelve bore kids, all of which were goitrous, and ten were stillborn, ill-developed, and hairless; these eleven large congenital goitres proved sterile on aërobic and anaërobic cultivation. Four control non-goitrous goats, fed with clean food and water, and kept muzzled to minimize the chances of accidental infection, gave birth between them to three kids that were free from congenital goitre. Four other control animals were similarly fed but not muzzled; two became goitrous, the other two did not, and between them these four animals produced three kids, two of which had small congenital goitres. A further experiment was carried out with one of the laboratory goats belonging to the Institute. The animal had a considerable goitre, and Major McCarrison successfully performed a right-sided thyroidectomy on it. It was then impregnated by the same male, and in due time gave birth to a healthy non-goitrous kid. The conclusion to be drawn from these researches is this: That congenital goitre in goats is due to the action on the fetal thyroid gland of toxic substances derived from the maternal intestine. These substances are the products of microbes originating in faecally-contaminated soil which are conveyed to man and animals by infected food and water. The toxicity of the cultures administered to the twelve first-mentioned goats above must have been very great, for the congenital goitres produced were, as a rule, of large size, as is shown by photographs reproduced in Major McCarrison's paper, and the offspring showed gross evidence of development retarded or brought to a premature close. The exact nature of the infecting agent responsible for this production of congenital goitre still remains a matter of speculation. It is a problem of great interest. We hope that it may presently meet with its solution at Major McCarrison's hands.

[1] *Indian Journal of Medical Research*, Calcutta, 1916, IV, 183.

"BRITISH BEEF STEW."

The famous Russian General Brussiloff and a distinguished British novelist have agreed on the estimate that the war will continue until some day in next summer or autumn, but it is reported in the United States that the British Government has recently contracted for 600 million cans of beef stew. Allowing each man a can a day, this would supply an army of three million men for a period of nearly two years; but perhaps the men of the British army are capable, on the average, of consuming two cans of beef stew daily. Dr. John Aulde, of Philadelphia, has published an analysis of this beef stew. He says that it is composed of cooked beef 6 oz., rice 4 oz., beans 1 oz., onions 1 oz., carrots 1 oz., and that its value in food utilized is protein 50 grams, fat 60 grams, carbohydrate 37 grams, yielding 914 calories. He compares this with the "'balanced ration' so well understood by American stockmen." This contains 50 grams protein, 50 grams fat, 200 carbohydrate, and yields 1,490 calories. The carbohydrate in a day's diet should be as it is in this ration—four times the protein and the fat one-fifth of the whole. The British army stew is, of course, amplified by bread, jam, etc., and there is no advantage in putting more vegetable into it than will go to make a palatable stew. We must say the formula sounds an appetizing one, and ought to be much more acceptable than bully beef to all excepting those few unfortunate individuals who cannot bear onions. Dr. Aulde draws attention to the importance of an adequate supply of calcium in the diet. The beef stew contains 1.5 grains of calcium oxide and the same amount of magnesium oxide. The average dietary of American homes contains 10½ to 15 grains of calcium, and about half the quantity of magnesium; and he asserts that "when these proportions are reversed susceptibility to illness follows." "Deficiency of calcium," he says, "is the pivot in the production of rickets, a deciding factor in creating susceptibility to tuberculous infection in both adults and children, and a demonstrable condition in Bright's disease and diabetes. Recent investigations by the United States Public Health Service prove beyond question that the loss of lime salts is the sole cause of pellagra." This is a rather alarming picture, but even those who feel difficulty in accepting it as true will be pleased to know that our soldiers are not to be exposed to the risks enumerated.

Drs. Bernstein and Fish have published a report (*Journ. Amer. Med. Assoc.*, 1916) on an epidemic of poisoning by pies which occurred in July, 1915, in Westerley, Rhode Island, and in an adjacent township in Connecticut. It was traced to a restaurant where dough was mixed on July 2nd, and a batch of pies, apple, lemon, custard, etc. (but no meat), made on the following day; they were eaten on July 4th and 5th. Sixty people were seriously ill, four cases ending fatally. The attack in most instances came on from twelve to nineteen hours after the meal, the patients suffering from epigastric pain, burning sensations from the fauces to the stomach, great thirst, and cramps in the calves. Vomiting of green fluid and passage of green pea-soup-like fetid faeces continued for many days, and the diarrhoea was associated with tetanic spasms; one patient, a child, was comatose for three days with rigidity of the muscles of the neck. The temperature was high, but the pulse remained normal. Cultures were made and animals inoculated with a growth obtained from pie mixture and from a specimen of blood from one of the patients. These researches proved that the poisoning was due to the *Bacillus paratyphosus* B.

THE WAR.

SOME IMPRESSIONS OF A CIVILIAN AT THE WESTERN FRONT.

(Continued from p. 433.)

THE COMMANDER-IN-CHIEF.

SOON after my arrival in France, Sir Arthur Sloggett, the Director-General of the Medical Service of the British Armies, was good enough to take me with him on a round of inspection towards the Somme front. We had been running for some time along one of the broad, straight, poplar-bordered main roads, laid out by a soldier over a century ago, and now so well serving the turn of the armies of to-day, when the car turned off into a by-road. It was a fine early autumn morning, and I made no note of time or distance as we wound through tree-shadowed lanes the like of which may be found by the score in Southern England, but presently we drew up at a modest country house. "I must keep you waiting for a few minutes," my companion said, "for I have to see the Commander-in-Chief." Though the rumbling of the guns like distant thunder—continuous, but rising, as it were, into peaks of sound when the big guns gave their short, full-throated bellows—was an obsession, the shoulder-straps of the sentries at the gate bore the name of a famous volunteer corps in which I had once been a private, some contented hens strolled with me across the big yard surrounded by spacious red brick farm buildings, and the whole scene looked friendly and homely. I was aroused from a reverie by the call of my name, "Sir Douglas Haig will see you." I passed through the entrance doorway, crossed a stone hall, and entered a study with windows looking on to a tranquil garden. It was an inspiring experience to be greeted in that quiet, rather sombrely furnished room, with its serene outlook, by the man who had under his hand the largest fighting force that Great Britain has ever put into the field. It might have been a country gentleman in his house at home welcoming one to discuss some matter of local interest. But he turned at once to a relief map on the table and pointed out the positions at that moment, telling what had been done that morning by men, some of whom we were to see a little later returning to have their wounds dressed. He demonstrated other points on a map of the Somme front, and showed me a set of the map-like photographs our airmen take of the German trenches and defences, in which the long, straight high roads, with their poplar trees, the winding lanes and the scarred fields look as neat and as plain as in a perspective map. "I am glad," he said, "that you have come. I would wish you to see everything that interests you. I am more than satisfied with the way the medical service is going, but judge for yourself. We have nothing to conceal from people at home. We want them to know what we are doing." And the Commander-in-Chief's words expressed what seemed to me the sentiment all through the army and every branch of it, which is—Don't tell the enemy anything he does not know and which it might help him to know, but tell the people at home how we are doing things, for the better they understand the better they will be pleased. And that is the simple truth.

BASES.

The true base, the end of the lines of communication of the British armies in France, is England, and for the medical services the military general hospitals in Great Britain and Ireland; but the Channel causes a break, and from the first it has been considered advisable to establish medical bases at convenient points in France, where the necessary interruption in the journey may be turned to good account. These bases vary in magnitude and arrangement, but all are composed of a good many units. They usually, if not invariably, comprise stationary hospitals, general hospitals, and convalescent dépôts. A general hospital, according to the regulations, resembles in its organization, personnel, and equipment, the larger military hospitals in time of peace, but it maintains supplies of clothing, necessaries, and equipment for issue to patients as required. The regulations before the war directed that a general hospital should be organized for 520 beds—500 for men and 20 for officers—but the establishment has been doubled, and a general hospital, if the site affords scope, may be very much expanded beyond this, in the manner with which we have become familiar in the case of Territorial general hospitals at home. A stationary hospital is theoretically organized for 200 beds, but the regulations say that "it must be prepared to expand so as to accommodate a much larger number of patients on emergency," and this not infrequently happens.

To the civilian observer the distinction between a general and a stationary hospital, as seen under the conditions prevailing in France, may not be very obvious. This is probably to be explained by the relative shortness of the lines of communication on the other side of the Channel and to the fact that, as has been said, the true base is in the United Kingdom. In some instances, however, a stationary hospital is specialized in whole, or in part, to receive certain classes of cases. For instance, at one of the bases I was taken to a hospital camp which my guide spoke of as "the fracture hospital." It was a stationary hospital officially known by its number, but specially devoted to the treatment of fractures. Among its officers were surgical specialists who had shown special interest in the treatment of fractures. It contained at the time I visited it a good many cases of compound fracture of the thigh, and one could not but admire the skill and care lavished on men who had suffered wounds of this nature. They are, for several reasons, a very difficult class of case to treat. The man is very helpless, and unless the limb is immobilized suffers much pain and distress; but to immobilize it in such a way as to permit the surgeon to get at the wound, to allow the patient some freedom of movement so that he may shift his attitude in bed a little, and to facilitate nursing, is a problem difficult of solution. Much ingenuity has been expended at this hospital in devising appliances, some of which are of a very elaborate character, and have already been described in our columns. A month ago a note (p. 301) on the fixation of extension appliances was published, describing a glue used for fixing strips of dry gauze, and inspection of a few cases here made it plain that the glue acted efficiently in fixing the strips of gauze, and the patients were unanimous in saying that it was comfortable. The preparation consists of 50 parts each of common glue and tap water, to which 2 parts of glycerine and 1 part each of calcium chloride and thymol is added. The thymol covers the odour of the glue, the glycerine prevents it from becoming too brittle, and the calcium chloride increases the hydrophilic properties of the application. This is an important point, for the net result is that the gauze is easily removed without distress to the patient, although it is not the custom to shave the limb before application. The method of making extension by the use of this glue is cleanly, efficient, and comfortable to the patient. It has also the incidental advantage of being inexpensive.

One evening I watched the unloading of an ambulance train at a base which is also a port. Shortly before it came into the station a number of motor ambulances drew up, and, in addition, at this place tramcars were provided for slight cases. Three medical officers were on duty, and one of them was chiefly engaged in selecting the hospital to which the cot cases were to be sent. A motor ambulance was labelled with the number of the hospital to which it was to go, and it departed as soon as it was filled. Knowing something of the character of the various hospitals it was easy to understand the principle upon which the medical officers were working. Very many of the slighter

cases were directed to a general hospital near the embarkation quay of the hospital ships. Many of these men would, after a night's rest, be sent home in the morning or during the course of the following day. Others, again, who it seemed probable might be cured and returned to their units within a short time would be directed to the convalescent camp. Many of the fracture cases were directed to the "fracture hospital." Cases of wounds of the face were sent to another stationary hospital where there was a special facial department with a staff of surgeons, dentists, and dental mechanics. In yet another part of this area there was a special hospital for infectious diseases. Such cases are isolated on the train, and can be sent direct to the special hospital from the station.

On a later day during my visit to France I visited another medical base. We turned off the straight, century-old military road, which had brought us from an old historic town, to a very modern town erected on a sandy plain between estuary and sea. There was a small fishing town with a railway station a little way up the estuary, but the new temporary town was an independent organization, having its own sanitary arrangements, its own water supply, its own railway station, and, alas! its own cemetery. It was in the main a town of hospitals and convalescent camps for sick and wounded, and it was subject to a benevolent despotism which some philosophers have declared to be the best form of government. The despot here, like some others in history, had a keen eye for finance, but his operations provided luxuries not for himself but for his subjects, and they were secured not by squeezing them but by the utilization of waste products after the most approved modern method. His latest success in that direction was to salvage an incredible quantity of fat, a commodity which commands a very good price in the market to-day. The hospitals spread far, covering a wide extent of ground; the sandy soil on which they stood possesses some advantages from a sanitary point of view, attended, however, by certain drawbacks in the matter of foundations and road making. It may again be said that for the proper working of temporary tented or hutted hospitals good roads of approach and entry, and good firm dry paths, are very desirable but not always easily to be made.

This difficulty had not been felt in the case of a very well-appointed hospital built and maintained by the Order of St. John, for the several wards and offices were connected by covered corridors, with wooden floors. This hospital, regarded as a temporary structure and compared with regulation hutted hospitals, must, I believe, be considered a costly building; but, compared with brick or stone and mortar, it was cheap, and it may be asked whether those who have had experience of such an institution will be ready in future to approve the erection of many-storeyed hospitals of costly masonry work on confined sites in large towns. It seems not improbable that they will be disposed to favour the expenditure of more money on a larger site and less on construction. Experience proves that hospitals constructed on principles esteemed admirable by one generation are condemned by the next, and are torn down to be built up again in an equally expensive style. The underlying assumption has been that the general hospitals of a large town must be built in the centres of population where the majority of their patients reside, or close by the factories and works in which accidents most commonly occur. After the demonstration which this war has afforded on a huge scale of the efficiency of motor ambulances, it may well be asked whether a wiser policy might not be to have, after the manner of the army, several civil casualty clearing stations in the working centres, and general hospitals on ample airy sites outside the area of dense population.

However this may be, the amenities of the hospitals in this great camp were striking. The wards, though not lofty, were airy, and the abundance of light gave them a cheery aspect, which must have had a beneficial effect on the mental attitude of the patients. It was cheering also to the medical observer to know that the temporary character of the hospital did not prevent the application of scientific methods for the guidance of the surgeon. In one large general hospital here, for instance, a surgeon and bacteriologist were working in very close association, with the object of ascertaining the moment when the wound was sufficiently free from microbes to be closed. The bacteriologist was able to observe from day to day the diminution in the number of micro-organisms under treatment by, if I remember right, hypochlorite solution; when the number had been reduced to a safe minimum the wound was sewn up, with the very best results and a great saving of the time for which the patient would otherwise have had to continue under the surgeon's hands for daily dressings. In other places similar results were obtained by saline irrigation, or the salt pack, combined with the excision of the wound in suitable cases, either in an earlier or later stage. This method of excision of a ragged, contused, infected wound, which seems to be one of the most important of the surgical advances made during this war, had its origin, I believe, at Rouen, but it will now be found a part of the habitual practice of many surgeons from the casualty clearing stations onward to the base.

SHEARER'S DELINEATOR.

I had not been long with the medical service in France before one of the consulting surgeons spoke to me of a new method for the delineation of organs *in vivo*, and the localization of lesions, which was being worked out at a casualty clearing station not far behind the Somme front. When he first showed me some of the results of this process in the form of outlines of the kidney, the brain, and the liver, I was inclined to assume that I was being made the victim of a practical joke. He at once admitted that my suspicions were not unreasonable, but quite seriously assured me that they were unfounded, and strongly recommended me to go and see. He told me that the results had been tested by observations both at operation and *post mortem*, and that the indications they gave had been proved to be correct. Later on, after hearing a good deal more gossip and conjecture, I was able to visit the casualty clearing station, and to see something of the manner in which the method is carried out. I found that the inventor, Sergeant (Dr.) Shearer, R.A.M.C., had been provided with a small hut divided into two compartments. That at the back was mainly occupied by an improvised dark chamber; in the front part were a couch, and a small cupboard which contained certain electrical apparatus, and the cylinder upon which the needle made the tracing. The inventor showed the whole apparatus in the cupboard freely, and demonstrated every detail, but I have to confess that I was not competent fully to understand his explanations. As a matter of fact, there is, I think, still a good deal of empiricism in his procedure. A patient with a gunshot wound of the head, was brought in on a stretcher and laid on the table between the screen above and the screen below, as described in an article at page 459. The cylinder was covered with a strip of paper treated with paraffin wax and the apparatus set going. One saw the cylinder carrying the wax paper revolving rapidly and the needle moving over it, making a series of marks upon it. The procedure, so far as the patient was concerned, was finished in less than a minute. The wax paper was then removed from the cylinder, and on holding it up to the light one saw that there was a tracing stencilled upon it. The paper was then taken to the dark room, rubbed over with a preparation of fine charcoal, and then shaken and dusted, so that the charcoal remained only in the tracing marked on the wax paper. A photographic print was then taken by direct contact and the negative thus obtained developed, fixed, and washed in the ordinary way. On examination in daylight it was seen to have upon it a tracing of the brain, showing the outline of the organ, the blood vessels, and an irregular patch which was held to indicate the site of the lesion. In reproducing such a negative (which is printed on p. 459) it was found most convenient to print it as a positive, but the black lines in the illustration were white in the negative shown to us, and the brain tissue was dark. The other illustrations are reproduced as negatives, so that they show with exactness the appearances actually presented to the surgeon. I saw also a specimen of a liver removed *post mortem* showing a large stellate wound of the anterior surface. I was allowed to compare it with the negative, and it appeared that the blur shown on it corresponded to the position of the lesion. I also saw other *post-mortem* specimens in which the accuracy of the method was demonstrated. I was not able to follow the patient from whom the negative I saw made was obtained, but I witnessed a *post-mortem* examination which showed the

weakness of the method in its present stage. It was also a case of gunshot wound of the brain. There was a wound over the left temporal region, and the negative which had been obtained from it during life showed a blurred area posterior to the wound, and Sergeant Shearer ventured the prediction that the missile had travelled backward, downward, and inward, and would be found at a depth of about two inches. The *post-mortem* examination, made in my presence, showed that in thus attempting to localize the position of the missile he was mistaken. It had traversed the brain in the direction he indicated—namely, backward, downward, and inward—but it had passed through the whole of the left hemisphere and the whole of the right, and was lying in contact with the cranium on the right side, having slightly torn the dura mater in this situation. At present, therefore, the method is subject to the same disadvantage as the *x*-ray method suffered when it was the custom to take skiagrams in one plane only. The inventor hopes shortly to overcome this difficulty, and proposes, I am informed, to publish a full description of his apparatus and its mode of action at an early date.

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Killed in Action.

Lieutenant-Colonel R. P. Campbell, C.A.M.C.
Captain N. W. Broughton, R.A.M.C. (temporary).

CAPTAIN H. F. H. PLANT, A.A.M.C.

Captain Harold Frederick Hood Plant, A.A.M.C., aged 28 years, who was killed in action in the recent fighting in France, was the son of Colonel Plant (retired) of Brisbane, Queensland. He was educated at Bowen House School, Brisbane, and matriculated in 1908 from the Boys' Grammar School, Brisbane, to the Sydney University. At school he took a keen interest in all sports, and represented his school in football and rifle shooting. He rose to the rank of officer cadet in 1907, and obtained a commission in the Commonwealth Senior Cadet Forces. In March, 1908, he entered St. Andrews College, Sydney University, as a medical student. He represented his college and the university in rifle shooting and coxed the St. Andrews crew. He graduated in March, 1913, and acted as resident surgeon at the Lady Bowen Hospital, Brisbane, Queensland, for three months, after which he was resident medical officer at the Brisbane General Hospital for twelve months, and then the Hospital for Sick Children, Brisbane. He left Australia with the 1st Australian General Hospital, and later saw service with a stationary hospital at Gallipoli until the evacuation. He later rejoined the 1st Australian General Hospital, and at the time of his death was acting as regimental medical officer to an Australian battalion. The following notification was published in orders by the Army Corps Commander:

The Army Corps Commander wishes to express his appreciation of the very gallant conduct of Captain H. F. H. Plant, A.A.M.C., who, during the recent fighting at Pozières, distinguished himself by his unremitting efforts on behalf of the wounded, no less than his cheerful gallantry in action. The example of endurance and fortitude he set is acknowledged to have had the happiest influence on the battalion to which he was attached. The Corps Commander very much regrets that this gallant officer was later killed in action.

CAPTAIN C. E. H. SMITH, R.A.M.C.

Captain Charles Edgar Holton Smith, R.A.M.C., was killed in action on September 16th. He was the eldest son of the late Charles Smith, of Milligan Hall, Taunton, Somerset, and was educated at Edinburgh University, taking the Scottish triple qualification in 1911. After filling the posts of house-surgeon and house-physician at the East Suffolk Hospital at Ipswich, and acting as second surgeon of the British Red Crescent hospital in Tripoli in the late Italo-Turkish war, he went into practice at High Green, Cannock, Staffordshire. He joined the R.A.M.C. as a temporary lieutenant on November 1st, 1914, and was promoted to captain after a year.

Lieutenant E. H. McVicker, R.A.M.C. (temporary), attached Lancashire Fusiliers.

Wounded.

Captain C. F. Brady, R.A.M.C. (temporary).
Captain K. B. Dickson, R.A.M.C. (temporary).
Captain H. Good, New Zealand A.M.C.
Captain H. A. Harris, R.A.M.C. (temporary).
Captain H. Hart, Canadian A.M.C.
Captain J. Hart, R.A.M.C. (temporary).
Captain R. R. McClenahan, Canadian A.M.C.
Captain O. C. Martyn, R.A.M.C.(S.R.).
Captain J. A. Pridham, R.A.M.C. (temporary).
Captain W. R. Ranson, R.A.M.C. (temporary).
Captain G. H. Watson, R.A.M.C.(T.F.).
Captain I. S. Wilson, R.A.M.C. (temporary).
Lieutenant H. Farncombe, R.A.M.C. (temporary).
Lieutenant S. A. McClintock, R.A.M.C. (temporary).
Lieutenant R. Puttock, R.A.M.C. (temporary).
Lieutenant E. W. G. Young, R.A.M.C. (temporary).

Missing.

Captain T. L. Ingram, D.S.O., R.A.M.C. (temporary).

Died of Wounds.

Major A. Martin, New Zealand Army Medical Corps.

CAPTAIN S. M. GRAHAM, A.A.M.C.

Captain Stuart Millard Graham, Australian Army Medical Corps, who died of wounds in France on August 22nd, was the son of the late Sir James Graham, a well-known medical practitioner of Sydney, N.S.W., who took a prominent part in the public life of the State as Lord Mayor of Sydney and member of Parliament for Belmore, Sydney. Captain Graham was born in 1891, was educated at the Sydney Grammar School and at the Sydney University, where he graduated in 1913. Subsequently he served on the house staff of the Royal Prince Alfred Hospital and of the Crown Street Women's Hospital. He joined the Australian Imperial Force in 1915, serving first in Egypt and then for several months with the 3rd Australian General Hospital at Mudros until after the evacuation of Gallipoli. When the Australian forces were leaving Egypt for France he was posted to the 1st Field Ambulance, and it was while working at an advanced dressing station of this ambulance on August 19th that he received the shell wound which proved fatal three days later. Captain Graham had given promise in civil life of a brilliant future, and his military work was consistently good. He was extremely popular with a wide circle of comrades, who all deplore his death.

CAPTAIN E. P. LEAHY, R.A.M.C.

Captain Eugene Patrick Leahy, R.A.M.C., is reported as having died of wounds. He was the son of the late Mr. Donald Leahy, of Belfast, and was educated at the Victoria University, Manchester, where he graduated as M.B. and Ch.B. in 1913. After acting as house-surgeon of the Royal Infirmary, Chester, he took a temporary commission as lieutenant in the R.A.M.C. on February 1st, 1915, and was promoted to captain on completion of a year's service.

Accidentally Killed.

CAPTAIN T. STRAIN, R.A.M.C.

Captain Thomas Strain, R.A.M.C., was accidentally killed on service on September 16th. He was the youngest son of Mr. W. Strain, of Buarbrae, Wishaw, and was educated at St. Mungo's College and Anderson's College, Glasgow, and at the University, where he graduated M.B. and Ch.B. in 1906, and M.D. in 1910. He took the D.P.H. Cambridge in 1908, and filled successively the posts of resident medical officer of Enfield and Edmonton Joint Isolation Hospital; of assistant medical officer of health and school medical officer to the Ayrshire County Council; and of medical officer of health, bacteriologist, medical superintendent of the Infectious Diseases Hospital, and medical officer of the tuberculosis dispensary to the Barnes Urban District Council. Before the war he was medical officer of health and school medical officer of Heston and Isleworth Urban District, and consulting physician to the Richmond, Heston, and Isleworth Joint Isolation Hospital Committee. He took a temporary commission in the R.A.M.C. on April 12th, 1915, and was promoted to captain on completion of a year's service.

Prisoners Exchanged.

It is announced that the following officers of the I.M.S., taken prisoners by the Turks at Kut-el-Amara in April, have been released as exchanged prisoners, and transferred to India: Colonel P. Hehir, C.B., Majors C. H. Barber and S. Bose, Captains P. B. Bharucha and H. H. King.

DEATHS AMONG SONS OF MEDICAL MEN.

Brown, Lieutenant W. J. H., killed in action on September 4th, was the eldest son of the late Dr. Brown of North Shields and Mrs. Brown of Sydenham. He was educated at Tenbury and Tynemouth schools, and entered Durham University as a medical student. On his father's death he had to relinquish the medical profession, and went as under-manager to the Bertam estate, Straits Settlement, for two years. He returned to England in 1914, and on regaining his health joined the Norfolks in August, 1914.

Daly, A. C. de Burgh, Second Lieutenant Royal Dublin Fusiliers, younger son of Dr. de Burgh Daly, of Dublin, killed September 14th, aged 19.

Dinan, George Albert, Second Lieutenant Royal Dublin Fusiliers, the fourth son of Mr. John Dinan, of Knockeven, Rushbrooke, Queenstown, was killed on September 9th. He was born in April, 1891, and was educated at the Benedictine College, Ramsgate, and subsequently was a medical student of University College, Cork, and of Guy's Hospital, London. He received his commission in January of this year.

Douglas, Archibald Halliday, Lieutenant Royal Scots, the Lothian Regiment, younger son of Dr. Kenneth M. Douglas, of Edinburgh, killed on September 17th. He was educated at Edinburgh Academy, where he was *dux*, or head boy, in 1914; was captain of the school; and was for three years in the school fifteen, and for two years in the eleven. He was entered at Brasenose College, Oxford, and intended to read for the Indian Civil Service, but joined the Royal Scots on October 4th, 1914, going to the front in April, 1915.

Harris, H. R. S., Private, Australian Imperial Force, second son of Dr. and Mrs. Spencer Harris, of Ely, has been killed in action in France by a shell bursting in his trench. He had served in the Gallipoli campaign.

Hoole, Geoffry, Second Lieutenant London Regiment, killed on September 15th, in his 21st year, was the youngest son of the late Dr. Henry Hoole and of Mrs. Hoole of Streatham. He was educated at the Modern School, Streatham, and resigned his position on the staff of Lloyd's Insurance to join the Artists O.T.C. in September of last year. He was gazetted to his battalion in June, 1916, and had only been at the front for a few weeks.

Limrick, Paul Osborne, Lieutenant the King's Liverpool Regiment, only son of Dr. O. E. B. Limrick, of Liverpool, killed on September 12th, aged 19. He was educated at the Liverpool Institute, where he was a sergeant in the O.T.C., and at Liverpool University. He got a commission on December 10th, 1914, and went to the front last July.

Macdonald, Archibald Walter, son of Dr. Albert A. Macdonald, of Toronto, Canada, killed on September 15th, aged 27.

Milton, John Munro, Lieutenant Northumberland Fusiliers, missing (believed killed) since September 26th, 1915, was the only son of Dr. Herbert Milton of Cairo. He was educated at St. Vincent's, Eastbourne, and Wellington College, Berks, being school prefect in 1910-11. He passed the intermediate examination for the Society of Chartered Accountants in July, 1914. He was in Switzerland when war broke out, but managed to return to Cairo, which he left in November, 1914, to offer his service.

Myles, William Whitson, Second Lieutenant Cameronians, aged 20, youngest son of the late Dr. T. P. Myles and Mrs. Myles of Castle Street, Brechin, died of wounds on September 20th. He was educated at Brechin High School and Leys School, Cambridge, and was just entering the university when war broke out. He joined almost at once, and received his commission early in 1915.

Starr, Dillwyn Parrish, Second Lieutenant Coldstream Guards, second son of Dr. Louis Starr, M.D., LL.D., of Philadelphia, killed on September 15th, aged 32. He was born in 1884, and educated at Groton School and at Harvard, where he was for four years in the university football team. At the beginning of the war he joined the American Motor Ambulance Volunteer Corps, and for several months drove an ambulance for that unit, attached to the second French Army. In December, 1914, he enlisted in the Armoured Motor Car Service of the Royal Naval Air Service, and served with the Duke of Westminster's squadron in France, taking part in the battle of Neuve Chapelle. In May, 1915, he got a commission in the same service as sublieutenant, and served at Gallipoli and Suvla Bay. In December, 1915, he returned to England, and received a commission in the Coldstream Guards, returning to the front last July.

Tweedy, Trevor Carlyon, Captain Northumberland Fusiliers, eldest son of Major Reginald Carlyon Tweedy, R.A.M.C., of Kenilworth, was killed on September 15th, aged 21. He joined the sixth Territorial battalion of that regiment a year before the war began, on September 1st, 1913.

MEDICAL STUDENTS.

Birtles, Leonard, Second Lieutenant Durham Light Infantry, killed September 16th, aged 23, was the only son of Mrs. Henry Birtles of Putney, and was educated at Merchant Taylors School and at St. Thomas's Hospital. At the beginning of the war he enlisted in the Civil Service Rifles, and afterwards obtained a nomination for Sandhurst, being gazetted to the Durham Light Infantry on passing out. He was a well-known Rugby football player, having played for his school, his hospital, and for the Old Merchant Taylors' club.

Don, Archibald William Robertson, Lieutenant Royal Highlanders, the Black Watch, died on service abroad recently. He was the son of Mr. R. B. Don of Tealing House, Forfarshire, and was educated at Cambridge and in London, where he was studying medicine. His first commission was dated December 18th, 1914.

We regret to notice in the casualty list issued on September 24th the name of Sir Guy Butlin, Captain Cambridgeshire Regiment, the only son and heir of the late Sir Henry Butlin, among the wounded and taken prisoner.

In the same list among the wounded occurs the name of Lieutenant Weldon Champneys, Grenadier Guards, the surviving son of Sir Francis Champneys. We are glad to be informed that the wound is not dangerous.

NOTES.

HONOURS.

THE *London Gazette* of September 22nd and the Supplement issued on September 26th publish the names of a long list of officers decorated for services in the field. Among them are five medical officers who receive the D.S.O. and forty-three the Military Cross. Their names are given below, with the services for which they were decorated.

D.S.O.

Temporary Captain Lancelot Gerard Bourdillon, R.A.M.C.

When an officer had been killed carrying in a wounded sergeant, Captain Bourdillon went out in broad daylight, bandaged the sergeant's wounds, and only came in when certain that the latter could not live.

Temporary Captain N. W. Broughton, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. During a very heavy bombardment he, on three occasions, helped to dig out men from blown-in dug-out. Shells were bursting all round him, but he refused to take cover, and it was mainly due to his efforts that most of the buried men were rescued. He has done other fine and gallant work. (The death of this officer in action is recorded on p. 469.)

Captain William Kealty Campbell, M.B., R.A.M.C.(S.R.).

He went ahead of the bearers and dressed the wounded in the open under heavy shell fire. Whilst establishing advanced dressing stations he was wounded and half blinded by the explosion of a shell, but carried on his work. He set a splendid example to those around him.

Temporary Captain D. W. Hunter, M.B., R.A.M.C.

For exceptional gallantry and devotion to duty. This officer laboured incessantly, tending and clearing the wounded in the open and in front line trenches under very heavy fire. At a critical time, when casualties had been heavy, he steadied and reorganized his stretcher bearers by his magnificent example and skilful control. After the battalion had withdrawn he continued searching the battlefield for wounded. He showed absolute disregard of danger. (Substituted for the announcement published in the *London Gazette* dated August 25th, 1916.)

Captain James Walker Jones, M.B., I.M.S.

For conspicuous presence of mind in closing with a soldier who had lost his reason and was moving along a trench prior to an attack with a bomb in each hand. Realizing the situation, Captain Jones closed with him, and wrenched one bomb from his hand. It immediately started to burn. Captain Jones threw it some yards away, and it burst on touching the ground. Two officers were injured by the explosion, and several others might have been injured but for this prompt and courageous action.

Military Cross.

Captain W. B. Allen, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He was telephoned for when an artilleryman was severely wounded, and came in at once over ground which was being heavily shelled at the time. On another occasion he did similar fine work under heavy shell fire.

Temporary Captain G. G. Bartholomew, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty during operations. His dressing station was continually under shell fire, but he tended the wounded with the greatest coolness and courage. He remained in the line thirty hours after the battalion had been removed. He had previously done similar fine work.

Temporary Lieutenant John Vincent Bates, R.A.M.C.

For tending wounded men under heavy shell fire, utterly regardless of his own safety. He made repeated efforts to save wounded men from burning when his dressing station was set on fire by a shell. His conduct throughout several days of heavy fighting was very fine.

Temporary Captain Cyril Armand Bernard, R.A.M.C.

For volunteering to conduct, under very heavy shell fire, stretcher-bearers bringing in wounded. He made several trips and brought in many wounded.

Temporary Captain Arthur Joseph Blake, R.A.M.C.

He tended wounded men incessantly day and night under most trying conditions. He went out into "No Man's Land" searching for any wounded men who might still be lying there.

Temporary Captain F. Dallimore, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty during operations. Under heavy shell and machine-gun fire, after his aid post had been blown in, he continued dressing the wounded, and only retired after every man had been attended to and safely removed. Twice previously he had done similar fine work.

Temporary Captain John Maitland Forsyth, M.B., R.A.M.C.
When the battalion was subjected to continuous heavy shell fire, he tended the wounded with great courage. On hearing that an officer was badly wounded out in the front, he went out at once under heavy fire to look for him. He has always carried out his duties under fire with the greatest coolness and courage.

Temporary Captain N. C. Graham, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty during operations. For several days he was constantly tending the wounded under heavy shell fire. He refused to leave the lines when the battalion had been relieved until he had attended to all the wounded of many other units. During the whole time he had hardly an hour's rest.

Temporary Captain Francis Joseph Henry, R.A.M.C.
He attended the wounded night and day unceasingly in the regimental "Aid Post," which was in an exposed position and damaged by shell fire. He also went into the open under heavy artillery and machine-gun fire.

Temporary Lieutenant James Arthur Liley, R.A.M.C.
He tended the wounded in the open and in the front trenches under very heavy shell fire. His coolness under heavy fire had a great moral effect on the men.

Temporary Lieutenant P. MacD. Little, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He collected and tended the wounded under very heavy fire during three days and nights. He also went out under heavy shell fire and brought in two wounded stretcher-bearers, and was going out again for two more, when a shell fell and killed them both.

Captain Campbell McNeil McCormack, M.B., R.A.M.C.(S.R.).
He directed the stretcher-bearers under heavy shell fire with the greatest coolness and courage. He succeeded in entering a village which had been heavily shelled, and, with another captain, a sergeant, and four men, collected the wounded into a dug-out and succeeded in getting them back later. He has frequently shown great courage.

Temporary Captain George Reginald Edward Gray Mackay, M.B., R.A.M.C.
He went across the open to tend the wounded in a trench which was being heavily shelled, and helped them into safety. On the same day he went out again to help some stretcher-bearers and wounded under heavy fire. He saved many lives, and set a fine example of courage.

Temporary Captain Dugald Black Maclean, M.B., R.A.M.C.
He worked incessantly, attending the wounded in the open, with practically no rest for three days, under heavy shell and machine-gun fire. His keenness and bravery inspired the stretcher-bearers. (The death of this officer in action was recorded last week, p. 435.)

Temporary Captain Samuel Wilson McLellan, M.D., F.R.C.S., R.A.M.C.
He brought up stretcher-bearers during the attack, and, though soon wounded and rendered unconscious by a shell, he resumed work immediately on his recovery, and carried on under very heavy shell fire. He worked without stopping for thirty hours.

Temporary Captain George MacLeod, M.B., R.A.M.C.
During several days of operations he worked unceasingly, tending and bringing in wounded officers and men, frequently in the open and under heavy fire. He set a splendid example to those around him.

Temporary Lieutenant Frank Percival Montgomery, M.B., R.A.M.C.
He collected and evacuated large numbers of wounded under heavy shell and machine-gun fire, working for five days in the open practically without sleep. He set a splendid example.

Temporary Captain J. McI. Morgan, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty in action. He has shown an utter disregard of personal danger on several occasions when tending and removing the wounded.

Temporary Captain B. N. Norman, R.A.M.C.
For conspicuous gallantry and devotion to duty during operations. He worked for practically forty-eight hours attending the wounded. His post was often shelled, but he only ceased work when he was physically incapable of further effort.

Temporary Captain Duncan Westlake Pailthorpe, R.A.M.C.
He attended the wounded in the open near the firing line under heavy fire of all descriptions, utterly regardless of personal danger.

Temporary Captain Murray Hulme Paterson, R.A.M.C.
He went out twice by daylight into "No Man's Land" and brought in wounded men. When his battalion was relieved he remained in his aid post till it was cleared of wounded. He did fine work.

Temporary Captain Arthur Owen Playford Reynolds, M.B., R.A.M.C.
For tending the wounded under heavy fire for thirty-six consecutive hours. He also made two gallant attempts to bring in a wounded officer under very heavy fire.

Captain Archibald Watson Russell, M.B., R.A.M.C.(S.R.).
He voluntarily remained days and nights in the trenches and in the open dressing wounded under heavy fire. He carried in several wounded men, and on one occasion he was partially buried.

Captain F. Sanders, M.B., R.A.M.C.(S.R.).
For conspicuous gallantry and devotion to duty in action. For forty-eight consecutive hours he worked in "No Man's Land," tending and carrying in the wounded, although he was wounded at the time.

Captain Noel Humphrey Wykeham Saw, R.A.M.C.(S.R.).
He worked incessantly for five days and nights tending the wounded brought in from "No Man's Land." He went out himself to direct operations connected with collecting the wounded quite regardless of the heavy fire.

Captain George MacDonald Scott, R.A.M.C.(S.R.).
For devotion to duty in tending the wounded in "No Man's Land" under heavy artillery and machine-gun fire. Finally he carried in a wounded officer on his back, but collapsed from his efforts. When he recovered he insisted on returning at once to duty, and continued dressing the wounded between the lines until he was knocked over by a shell and incapacitated.

Captain J. W. Scott, M.D., R.A.M.C.
For conspicuous gallantry in going forward with his stretcher-bearers and when all his party, with the exception of one non-commissioned officer, had become casualties he reached our advanced trench. In a shallow, broken trench he tended wounded for several hours. He carried back wounded at great personal risk, and for some time organized the removal of wounded from the advanced trench. (Substituted for the announcement published in the *London Gazette* dated August 25th, 1916.)

Temporary Captain Wilfred Archer Sneath, M.B., F.R.C.S., R.A.M.C.
He was out every night tending the wounded under fire. On one occasion he went out two hundred yards in advance of our front line and dressed a wounded man under machine-gun fire, afterwards bringing him in.

Temporary Captain J. M. Stenhouse, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty during several days of operations, when attending to the wounded under heavy shell fire. He repeatedly exposed himself when dressing wounds, and finally was himself wounded.

Temporary Captain James Smith Stewart, M.B., R.A.M.C.
When the advanced dressing station was heavily shelled he worked continuously tending the wounded, and went up and down the road for the same purpose. He personally assisted in rescuing seven buried men under heavy fire.

Temporary Captain Allen Edgar Thompson, M.D., R.A.M.C.
For skill during operations when attending wounded under heavy fire for thirty-six consecutive hours. Many times he searched ruined trenches and open ground for wounded, and although struck several times by shell splinters, and once buried by shell explosion, he continued his gallant work.

Captain P. Thornton, R.A.M.C.(S.R.).
For conspicuous gallantry and devotion to duty during operations. He did fine work among the wounded under fire, and, though badly wounded in two places, stuck to his work, though repeatedly urged to have his wounds properly dressed. He refused to leave the trenches until every wounded man had been brought in.

Captain G. Torrance, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty during operations. He moved about under heavy fire and rendered first aid to about 180 officers and men. When his dressing-station was blown in by a shell and his sergeant mortally wounded he continued his work in the open.

Captain W. S. Wallace, M.B., R.A.M.C. (S.R.).
For conspicuous gallantry and devotion to duty in action. Under very heavy shell fire he tended and directed the removal of the wounded. He continued working after being twice buried and partly stunned by exploding shells.

Temporary Captain C. McM. Wilson, M.D., R.A.M.C.
For conspicuous gallantry and devotion to duty during operations. He worked for over an hour digging out wounded men, at great personal risk. He then returned to his aid post and attended to the wounded. Later, hearing that an officer had been wounded, he passed through 100 yards of the enemy's artillery barrage, dressed his wounds, and finally got him into safety as soon as the barrage permitted. On other occasions he has done fine and gallant work.

Temporary Lieutenant James Ernest Studholme Wilson, R.A.M.C.
He went up to the front line from his aid post through a very heavy barrage, in order to assist the wounded. By his pluck and skill he undoubtedly saved many lives. He afterwards controlled the evacuation of the casualties under heavy fire.

Captain William Louis Rene Wood, R.A.M.C.
He went under very heavy shell fire to attend to the wounded, and also assisted to dig others out. By his coolness and example he has rendered great assistance under the most trying and dangerous conditions.

Captain C. Cosgrove, Australian Army Medical Corps.
For conspicuous gallantry and devotion to duty in action. He tended the wounded throughout and for many hours after the action. He was frequently under heavy fire, but carried on quite regardless of personal danger.

Captain Samuel Charles Fitzpatrick, Australian Army Medical Corps.
During protracted operations he dressed wounded in the open under heavy shell fire, and worked continuously for four days, with but little rest or sleep.

Captain Joseph Patrick Fogarty, Australian Army Medical Corps.
He carried out his work among the wounded with utter disregard to his own personal safety. Two brigades owe him a deep debt of gratitude.

Captain K. H. Grieve, Australian Army Medical Corps.
For conspicuous gallantry and devotion to duty in action. Owing to the battered condition of the front-line trenches, he was compelled to carry on his work among the wounded in the open. Under very heavy shell fire he showed the greatest coolness and courage. Though joined many hours later by other medical officers, he stuck to his work without rest or sleep.

Captain George Aloysius Makinson Heydon, Australian Army Medical Corps.
For four days he attended the wounded under incessant fire, carrying them to his dressing station when the stretcher-bearers had become casualties.

Captain H. Rayson, Australian Army Medical Corps.
For conspicuous gallantry and devotion to duty in action. For several days he rendered first aid in the trenches under very heavy shell fire, and worked night and day till the wounded were finally evacuated.

MENTIONED IN DISPATCHES.

The following medical officers are mentioned in the dispatches from General Sir Archibald Murray, Commander-in-Chief Egyptian Expeditionary Force, published in the supplement to the *London Gazette* on September 25th.

Egypt.

Staff.—Lieutenant Colonel (temporary Colonel) A. E. C. Keble, D.S.O., R.A.M.C.; Major (temporary Lieutenant-Colonel) A. M. McIntosh, M.B., R.A.M.C.(T.F.)

R.A.M.C.(T.F.).—Captain (temporary Major) T. G. Buchanan, M.B., North Midland Mounted Brigade Field Ambulance; Captain R. Proudfoot, M.D., Welsh Divisional Sanitary Section; Captain A. L. S. Tuke, M.B., attached to Fife and Forfar Yeomanry; Captain H. F. Humphreys, M.B., 2nd South Midland Brigade Field Ambulance; Captain G. L. Eastes, 2nd London Sanitary Company; Captain E. Bromet, attached to East Riding Yeomanry.

Salonika.

Staff.—Colonel A. A. Sutton, D.S.O., A.M.S.; Colonel M. P. C. Holt, C.B., D.S.O., A.M.S.

R.A.M.C.—Lieutenant-Colonel E. T. F. Birrell, C.M.G., M.B.; Captain G. F. Rudkin; Temporary Captain H. H. Davis, F.R.C.S.

R.A.M.C.(T.F.).—Captain (temporary Lieutenant-Colonel, R.A.M.C.) T. C. English, M.B., F.R.C.S., 4th London General Hospital.

The work of the British Red Cross Society and Order of St. John of Jerusalem, under Sir Courtauld Thomson, is brought to the notice of the Secretary of State for War for services rendered.

A MAXILLO-FACIAL HOSPITAL.

The British Red Cross Society and the Order of St. John have combined to establish a Maxillo-Facial Hospital in Princes Road, Kennington, which will be opened on October 1st for the treatment of discharged soldiers and sailors. It is hoped that men discharged from the military hospitals as unfit for further service on account of injuries of the jaw and face will be directed to it, and also that patients who have already received treatment but whose condition may not be entirely satisfactory may be sent to the hospital for examination with a view to further treatment by dental, mechanical, and surgical means.

PHYSICAL CLINIC FOR WOUNDED AND DISABLED SOLDIERS.

The Physical Clinic for Wounded and Disabled Soldiers, which was opened at 126, Great Portland Street early in July, has now been taken over by the British Red Cross Society. At present only officers have been received for treatment, but a considerable number have taken advantage of the facilities here provided of whirlpool and other baths, massage, and mechanical exercise. The clinic is closed this week for extensions but will reopen on October 2nd.

AMERICAN HOSPITALS IN GERMANY AND AUSTRIA.

The Berlin correspondent of the New York *Staats-Zeitung* for July 1st (quoted in the Boston *Medical and Surgical Journal* of September 14th) gives an account of the work done by American doctors in German and Austrian war hospitals during the past year. In 1915 the American Physicians' Expedition Committee opened a large reserve hospital at Oppeln in Silesia, and now it has six in operation. Of these, four are in Germany. Besides the one at Oppeln, there are others at Deutsch-Eylau in West Prussia, Naumburg an der Saale, and Coblenz. There are two in Austria-Hungary. The hospital at Deutsch-Eylau has 1,800 beds, and deals with surgical cases, not only among the wounded, but among the civil population of many neighbouring towns. The equipment of the American hospitals is described as ideal, and their work is greatly appreciated by the Germans.

England and Wales.

THE LONDON SCHOOL OF MEDICINE FOR WOMEN.

THE extension of the London (Royal Free Hospital) School of Medicine for Women, which is to be opened by the Queen on Monday next, will make it one of the largest of the metropolitan schools. Its steady development is one of the most remarkable features in the recent medical history of London. As recorded over the mantelshelf of its Council Room, "the London School of Medicine for Women was established in August, 1874, through the efforts of Miss Sophia Jex-Blake, M D." The classes opened on October 12th, 1874, with fourteen students. The number rapidly increased, and in a few years a considerable expansion of accommodation was required. In 1900 new premises were built on the original site, but in 1914 further growth made large additions to the laboratory and class-room accommodation necessary. The whole of the sum of £30,000 required to build and equip the new extension has been subscribed in response to an appeal first issued by the Council on December 10th, 1914.

The number of students during the session 1915–16 was 329. Of some 1,100 women on the *Medical Register* for 1916, 600 received their training at the school. It is a school of the University of London, and can now give a complete course of medical instruction, including the clinical course which is pursued at the Royal Free Hospital and, under a temporary agreement, at St. Mary's Hospital, Paddington, to a total number of about 450 students; that is, to provide for an entry of about 90 new students each year.

The new buildings cover an area of 5,250 sq. ft. adjoining the Wakefield Street block of the school. Part of the extension bears the name of the "Consuelo, Duchess of Marlborough," Physics Department. It comprises a lecture theatre, a lecturers' research room, and rooms specially designed for experimental researches on light. The ground floor is connected with the students' common room in the main block in Hunter Street by a colonnade and open court forming the northern end of the main quadrangle. A fine panelled union room for the use of the clubs and societies of the Students' Union adjoins the colonnade. The "Maude de Cros" organic chemistry laboratory and a chemical research laboratory fill the remaining space on this floor. The whole of the first floor is occupied by an extension of the Physiological Department, which is a memorial to the late Miss Julia A. H. Cock, Dean of the School from 1903 to 1914. It comprises a large advanced physiology laboratory, galvanometer room, research room, demonstration theatre, and lecturers' research and private rooms. The second floor is an extension of the Anatomical Department, and includes a dissecting room, preparation rooms, demonstration theatre, and research laboratories. The top floor is devoted to an animal house.

Considerable structural alterations have been carried out in the existing buildings in Hunter Street during the summer vacation, including an enlargement of the Biological Department, the provision of a refectory, and a new large library.

The buildings will be ready for occupation at the opening of the session. The architects for the extension and alterations are Messrs. H. V. Ashley and Winton Newman.

Ireland.

TYPHOID FEVER AND CONTAMINATED WELLS.

A SPECIAL meeting of the Carrick-on-Shannon No. 2 Rural District Council was held by direction of the Local Government Board on September 21st, when the clerk read a letter from the Board on the outbreak of enteric fever in the Hillstreet (co. Roscommon) district. As a result the police authorities were compelled to close the police barracks there and transfer the men to Kilmore. The Local Government Board stated that its medical inspector (Dr. McCormack), who visited the place at the end of August, had reported that the water supplies were obtained by all those who contracted the fever at Hillstreet from wells liable to surface contamination of both animal and vegetable origin. Professor McWeeney, from his bacteriological examination of the samples of the public water supplies at Hillstreet, regarded with suspicion three of the four samples supplied to him, and considered the fourth a border-line water. The Board asked what action the council intended to take to provide a pure supply of water for the use of the inhabitants. The council replied that it believed that the fever was imported into the district, and that the water supply was sufficient.

DUBLIN CASTLE RED CROSS HOSPITAL.

It can hardly be necessary to recall the fact that since the outbreak of the war the official residence of the Viceroy in the Irish capital has been converted into a hospital for wounded soldiers, nor is it necessary to dwell upon the great care bestowed upon the many hundreds of sufferers received within the walls of the Castle and the good surgical work done there. It is no exaggeration to say that despite the great tax put upon the surgical and nursing staff—a tax scarcely deemed within the bounds of possibility in the happy days before the war—Dublin Castle has won a glorious reputation in its splendid mission of mercy. A "pound day," held on September 20th, afforded the citizens of Dublin an opportunity of showing their appreciation of the noble work which has been so

unostentatiously accomplished, and at the same time of marking their gratitude to the gallant soldiers who have suffered in the fight. From 10 a.m. to 5 p.m. gifts of the citizens poured into the hospital. They comprised all the most necessary commodities—from sugar to tea, from sago to cigarettes. During two hours in the afternoon the wards were open to visitors, and many took advantage of the permission. At present there are 236 wounded soldiers at the Castle, and, needless to say, all that the public send in for their welfare will be gratefully received by the staff. The day's arrangements were carried out by the staff under the supervision of Miss McArdle, the matron.

Acute Anterior Poliomyelitis.

The Registrar-General's weekly return of births and deaths in Ireland for the week ending September 16th states that in the week ending September 2nd two acute cases of poliomyelitis were reported in the Dublin registration area, and one in the week ending September 16th. One case was also reported in Belfast. No deaths from, or fresh cases of, the disease are reported from any other part of Ireland. Of the deaths of the children registered in the Dublin registration area last week, 58 were those of children under 5 years of age, 45 being infants under 1 year.

Canada.

Medical Health Officers of Nova Scotia.

At the annual meeting of the Association of Medical Health Officers of Nova Scotia the chairman, Dr. John K. McLeod, drew attention to the lack of permanency in office of the medical health officer in many districts in the province and the refusal of some municipalities to pay the expenses of the medical health officer incurred by attending the annual meeting of the association. A committee was appointed to approach the Provincial Government in respect to these two matters. Dr. Nicholls, director of the Public Health Laboratory, read a paper on cerebro-spinal fever from the standpoint of epidemiology, in the course of which he stated that the greater number of cases had occurred in the towns and cities, and drew an analogy between the disease and pneumonia. Dr. Cameron, of Halifax, stated that several cases he had observed had followed pneumonia or tuberculous pleurisy. The Chairman, in a paper on disinfection, contended that satisfactory results would ensue from a much less stringent quarantine and terminal fumigation would be rendered unnecessary, were proper attention paid to the immediate destruction of infective discharges. He advised isolation of the patient, disinfection of discharges and of clothing soiled thereby, scrupulous asepsis on the part of attendants, daily cleansing of patient's room, and a terminal house cleaning. The paper was discussed at some length, and a committee was appointed to assist the Provincial Health Officer in revising the rules for quarantine and disinfection. Dr. J. B. Black, a former member of the Canadian Parliament, discussed the subject of a Federal Bureau of Public Health and referred to the present anomalous situation, whereby large sums of money were devoted to measures designed to improve the health of farm animals, but no similar provision was made to conserve the health of the people. Although a quarantine service existed and provision was made for the inspection of food, there was a want of co-ordination, no organized channel existed through which matters of interprovincial or international concern could be settled, and Canada had no national laboratory.

New Brunswick Medical Society.

At the thirty-sixth annual meeting of the New Brunswick Medical Society, at St. John on July 18th, the president, Dr. W. W. White, referred to the need for better hospital accommodation in that city. The society expressed itself strongly in favour of abandoning the provincial medical examinations for those of the Medical Council of Canada. This question was also considered by the Council of Physicians and Surgeons of New Brunswick, which met on July 18th, but no definite decision was made. The next annual meeting is to be held at St. John in July, 1917, and Dr. S. C. Murray, of Albert, was elected president.

Effect of Prohibition in Manitoba.

The Prohibition Act has been vigorously enforced in Manitoba during June, July, and August, and Mr. J. N. MacLean, chief of the license inspectors of the province, reports that, compared with the three previous months, the number of convictions for drunkenness had been reduced by 90 per cent. In Brandon the number of convictions was 19, as compared with 133 during the previous three months. The convictions for crime in Winnipeg numbered 161 during the three months under prohibition, compared with 813 during March, April, and May. Fifty convictions for infraction of the Act had been secured, and the fines collected had amounted to 10,000 dollars.

Medical Attendance in Outlying Districts.

The provision of adequate medical attendance and nursing for the inhabitants of outlying districts in the Province of Saskatchewan, which has been under discussion for some time in both medical and lay circles, was brought before the Association at the same meeting by Dr. Valens of Saskatoon, and a committee was appointed to obtain information as to actual conditions, to meet representatives of other bodies interested in the subject, to consider the probable consequences of any scheme suggested, and to report to the next meeting of the association, or, if necessary, to a special meeting called to consider the matter.

Correspondence.

MALARIA IN MEN RETURNED FROM FRANCE.

SIR,—The long immunity from malaria enjoyed by this country tends to make us forget the necessity for excluding its presence under present abnormal conditions in men sent home from France suffering from wounds and fractures, or from pyrexia of undetermined nature. The following case shows that it may be unwise to accept a diagnosis of influenza or trench fever until the blood has been examined for malarial parasites:

A Canadian officer, aged 32, was taken ill suddenly in the trenches on July 27th, 1916, after three weeks of very dry, hot weather when the flies had been more numerous than usual. He felt giddy and feverish; his temperature at night was 102° F. For a fortnight he lay up in his dug-out thinking to get well. He was then admitted to a hospital, where the diagnosis was influenza; later, in another hospital, the diagnosis of trench fever was made. He returned to England on August 18th, and went into a hospital for officers in London. His temperature on admission there was 100° F. He complained of debility and pain (peripheral neuritis) in the calves of the legs and in the forearms. There the diagnosis of trench fever seems to have been accepted, and after eight days he was sent to Bath. He arrived with a temperature of 101° F. and feeling very out of sorts, but with no definite clinical signs beyond the nerve pains in the legs and arms.

After watching the course of his temperature for a few days, during which it remained practically normal for forty-eight hours and then rose again, I had his blood examined at the pathological laboratory of the Bath War Hospital. The report was that "malarial parasites are certainly present." The patient has never been to the East or suffered from malaria before.

This is one of about 15 cases which have come to my notice either under my own care or that of colleagues. In two of them the patients had not been out of England. The cases seem mostly to have been of the tertian type and exhibited the malarial parasite in the blood in specimens stained with eosin-methylene blue.

My object in publishing this note is to draw the attention of others, both in France and at home, to the necessity of carefully examining the temperatures not only of men invalided home with the diagnosis of influenza or trench fever, but also of the wounded. One case under my care—a perforating in-and out wound of the pectoral muscles—had, three days after admission, a rise of temperature to 102°. At first this was thought to be due to insufficient drainage, but the temperature remained normal for the next forty-eight hours, when it again rose, though the wound was draining and doing well. An examination of the blood at once settled the question by showing typical malarial parasites.—I am, etc.,

G. J. KING MARTYN, M.D.Camb., D.P.H.,
Physician, Mineral Water Hospital and War Hospital, Bath.
September 22nd.

SIR,—May I add a few comments to Dr. King Martyn's letter? I write, of course, as a layman.

The expression "trench fever" is perhaps a confession of ignorance; it certainly covers a number of fevers due to varying causes. Every one knows how prevalent malaria once was in England, and unless precautions are taken it may re-establish itself. What is not so well understood is the fact that the particular species of mosquito which conveys it from man to man is still very widely spread in our islands.

Anopheles maculipennis is one of our commonest aquatic insects. Professor Nuttall, Dr. Cobbett, and Dr. Strangeways published in 1901, in vol. i of the *Journal of Hygiene*, an account of its distribution in Great Britain, illustrated with maps. They said that "we find that *Anopheles maculipennis* is by far the most prevalent species in this country and other parts of Europe and apparently in America. This species has been found in England, Scotland, Wales, and Ireland." At the time they wrote they recorded only one case of ague known to them arising in England. I have seen another case lately, in the western country, a man who must have contracted the disease at home.

The fact that the Academy of Medicine of Paris, as was mentioned in your columns on August 28th, has appointed a committee consisting of men bearing such well-known names as MM. Laveran, Blanchard, Roux, Wurtz, and Mosny, is evidence that they consider the matter of malaria well worth watching.

Another disease which is conveyed by mosquitos is caused by the presence of the nematode parasite *Filaria*. Their larvae are also known to be conveyed by a species of mosquitos or gnats, though I do not think at present that any of our endemic *Culicidae* have been found guilty. Last month I saw two cases in which patients were infected by these parasites, one of whom had returned from the Cameroons and the other from West Canada, where he had associated largely with Chinamen. They both had microfilaria in their cutaneous blood vessels. We do not know the potentiality of our native *Culicidae* in conveying these organisms to a fresh host, but it is worth investigation.

As the autumn draws on the fertile female *Anopheles* will be retiring to disused sheds, outhouses, cellars, and such places, to reappear in the spring of 1917 with an increased appetite. By that time we ought to be prepared to keep her away from malarious and "filarious" patients. We should, I think, at the time of her re-emergence be able to segregate such patients in mosquito-proof buildings. Unless some such precautions are taken we may find malaria, which was so terrible a scourge in comparatively modern times, re-established in our midst, and, although I doubt it, elephantoid disorders due to *Filaria* may occur.—I am, etc.,

Cambridge, Sept. 25th. A. E. SHIPLEY.

ANTENATAL CLINICS.

SIR,—In your issue of September 23rd Dr. J. W. Ballantyne gives a useful and convincing account of a day in the antenatal clinic of the Edinburgh Royal Maternity Hospital.

Fourteen pregnant women attended and one woman with albuminuria who was found not to be pregnant.

Of the fourteen women who were pregnant four were normal; of the ten others, one had to have induction performed for fetal heart failure and was found to have central placenta praevia, three also required induction of premature labour, and one Caesarean section for contracted pelvis, and one with a slight contraction was watched and allowed to go to term. Two others had swollen feet but no albuminuria and recovered under treatment. One had slight accidental haemorrhage and another pulmonary phthisis.

The proportion of cases requiring treatment at this clinic was of course exceptional, and it is probable that most of the women had already attended antenatal clinics at some outlying maternity centre or had already seen a doctor and had been sent on to Dr. Ballantyne for special advice and hospital treatment.

The account proves how useful antenatal clinics are and how valuable is the linking up of a general or maternity hospital with the surrounding maternity centres and clinics; and further, it shows the necessity, as Dr. Ballantyne insists, for prematernity beds being associated with the headquarters or consultative antenatal clinic.

Can Dr. Ballantyne tell us how pregnant women in Edinburgh are induced to attend local maternity centres for antenatal supervision? Is it through advice given by their medical practitioners and midwives or through health visitors or some other agencies? This, and linking up, are now the chief difficulties in ensuring medical supervision during pregnancy, for compulsory notification of pregnancy is impracticable.—I am, etc.,

London, W., Sept. 23rd. AMAND ROUTH, M.D., F.R.C.P.

THE LIFE-HISTORY OF ASCARIS LUMBRICOIDES.

SIR,—I should be greatly obliged if you could afford space for a reply to your editorial note on the life-history of *Ascaris lumbricoides* (July 1st, p. 23).

The note does not refer to my theory that the rat and mouse are intermediate hosts in the life-history of *Ascaris lumbricoides*. Another theory is advanced, to the effect that the ripe eggs hatch in the alimentary canal of the definitive host (man or pig, or the cat in the case of *Ascaris mystax*), that the larvae then migrate to the lung, and pass through the trachea and oesophagus to the intestine where they become adult. It is suggested that had the appropriate definitive host been used in my experiments in place of the rat and mouse, further results would have been obtained. This suggestion appears to give insufficient weight to the experiments recorded by me in which two pigs were treated with enormous doses of ripe eggs of *Ascaris suilla*. It also overlooks the experiments of Leuckart on the pig, horse, dog, and cat, in which these animals were treated each with the eggs of its own appropriate ascaris.

It may be suggested that the lungs were not examined in these experiments. But according to the theory under discussion the larva in the lung is merely the precursor of the adult in the same host. Now millions of ripe eggs were used in my pig experiments and only one adult was found in the two pigs employed. Leuckart's experiments were entirely negative.

Errors of technique are excluded in my experiments since the same technique was used as in the experiments on the rat and mouse. If infection succeeded in (inappropriate) animals such as the rat and mouse, it cannot be supposed that it would fail in the pig, which according to this theory is the appropriate host. This theory is, therefore, in my opinion untenable.—I am, etc.,

August 18th. F. H. STEWART, Captain I.M.S.

SIR,—The following statistics have been collected in the island of Grenada, British West Indies, where the International Health Commission of the Rockefeller Sanitary Institute have supplied the Government with funds to carry on a campaign against hookworm infection; of this campaign I have for two years been director. Here and now I do not discuss more than the significance of the figures to the mode of infection by *Ascaris lumbricoides*.

I shall assume that the relative "infectivity" of the three different intestinal parasites enumerated may be inferred from the extent of their incidence, regardless of the mode of infection and other factors.

The relative infectivity on all ages is: Hookworm, 75 per cent.; trichuris, 85 per cent.; ascaris, 93 per cent. Almost the whole population (98 per cent.) are infected with one or a combination of these.

The relative incidence at the age period under 1 year is: Hookworm, 6 per cent.; trichuris, 9 per cent.; ascaris, 21 per cent. The total infection by these three at this period is 24 per cent.

At the age period 1 to 5 years the infection is: Hookworm, 30 per cent.; trichuris, 78 per cent.; ascaris, 92 per cent.; and the total infection 95 per cent. There are slight differences in the relative incidence for sex at these age periods, which may have significance; but meantime I shall ignore them and assume that there is no special infectivity for sex.

For the other age periods the infection of hookworm jumps to near its maximum at the period 5 to 15 years, attains the maximum in the 15 to 45 years period, and remains there for the farther ages. The other infections attain their maximum earlier and maintain it over all ages.

The "opportunity" of infection is evidenced by the incidence. At the age period under 1 year the "opportunity" of infection is least for hookworm, considerably

greater for ascaris, and not pronouncedly greater for trichuris. At the age period 1 to 5 years the "opportunity" is increased all round—is greatest for ascaris, least for hookworm, and relatively increased for trichuris.

It is plain, then, the "opportunity" is less "obvious" in infancy than in later years for all three infections, and that "opportunity" is greatest for ascaris infection at all periods.

Accepting soil infection as the main route for hookworm, it is to be expected that the early years of life give relative exemption from that infection. But an infection by ascaris to the extent of 21 per cent. among infants under 1 year demands a fairly "obvious opportunity"—an "opportunity" which offers and is evidenced in the infection of over 90 per cent. of children of from 1 to 5 years of age.

One would expect the manner of such wide infection to be staring in the face. But it is not known.

If it be supposed that the vehicle of infection is food, there is then reason for the scant "opportunity" under 1 year of age. But if it were food, it must almost of necessity be food eaten uncooked, and even in the tropics I fail to find any article of diet which, taken uncooked, should succeed in causing infection in over 90 per cent. of children from 1 to 5 years of age.

Captain Stewart says: "It is obvious that the transfer of the parasite from the bronchi of the rat and mouse to the intestine of man and of the pig could be readily effected. The intermediate host might readily contaminate the food of the definitive host or the dust and earth of his surroundings." The rat and mouse are ubiquitous; they are in the town and in the remotest hut, which, in the West Indies, may be several thousand feet up the hillsides.

I do not find the rat in general is a faecal feeder; in the West Indies the country rat is highly frugivorous, and an arboreal dweller. Soil of course is contaminated with human excrement, and, if the rat is specially susceptible to ascaris infection, he has ample opportunity of getting it. But what are the chances in favour of rat or mouse infecting food to be eaten uncooked, or of infecting food or dust or earth that will cause infection through the fingers to the wide extent shown in these figures?

I may add, without abstracting the figures for production here, that, whereas hookworm is practically only an infection of the country, trichuris and ascaris are found in townsfolk to practically the same extent as in country folk. The "opportunity," therefore, for infection by ascaris and trichuris is equally "obvious" in town and country. So are rat and mouse.

Again, the few individuals to be met in the population dealt with, who have none of these infections, are the socially well to do.

I have accepted the suggestion that the final route of infection in the human is by the mouth. If the intermediary rodent should be necessary to complete the scheme of ascaris infection, it would appear to be necessary further, to aid preventive measures, to show the route of the infection from the rodent to 93 per cent. of the general population in probably all the tropical belt.

I give these figures and make these animadversions with a desire to help. I have given much time to the study of the habits of the people in their homes and afield, but further than finding ascaris ova in drinking water and a general incrimination of the "fatal finger" of the hygienically unclean, I regret I cannot see what, from the figures, seems waiting to be seen.—I am, etc.,

ANGUS MACDONALD, M.D.Edin.,
D.P.H.Manc., D.T.M.L'pool.
Grenada International Health Commission,
August 21st.

THE MECHANISM OF SALINE DRESSINGS.

SIR,—The article on this subject by Dr. Kenneth Taylor in the JOURNAL of September 2nd contains a number of speculations which appear to be at variance with experimental facts.

It is assumed, for instance, that the "albuminous substances" (by which doubtless is meant the colloids of the cell) exert an osmotic pressure independent of the total osmotic pressure of the cell contents after a certain osmotic ratio has been established. This is, to say the least, a very curious idea. Each colloidal particle within the cell possesses an osmotic activity exactly equivalent to that of any single crystalloid particle, whether the latter be an electrolyte or non-electrolyte, molecule or ion. The low osmotic pressure of colloids is merely due to the paucity of their molecules, which, of course, are very much larger than those of crystalloids. The osmotic pressure of the colloids is to be differentiated in no way from the general osmotic pressure, and can cause no separate action. The author is apparently confusing this osmotic pressure of the colloids with the phenomenon known as *imbibition*, a property exhibited by these bodies under certain circumstances. The idea that the cell colloids imbibe water to an abnormal extent in the presence of a saline solution is entirely unjustifiable. The author remarks that "colloids and gells (*sic*) may attract and retain water from a saturated salt solution. *Presumably* (the italics are mine) those in the cells may do the same from 5 per cent. saline." It is not mentioned whether these colloids and gels are placed in the saline in the dried condition or not; but, as a matter of fact, the laws governing the imbibition of water by dead colloids are quite different from those pertaining to the living colloids in the cell. According to the experiments of Martin Fischer, the latter imbibe water only in the presence of acids, while the presence of neutral salts—for example, NaCl—inhibits this action. In the case of imbibition by dead colloids, on the other hand, this is favoured by salts, the favouring effect operating in the order of the Hofmeister series. Acids (other than the normal amino acids which are amphoteric) may be produced in a wound by bacteria or by lack of oxygen. There is no evidence for the contention that at a certain "concentration point" there is an abnormal imbibition of water by the colloids, but rather the reverse, as concentration leads to increased velocity of chemical reactions within the cell and the break up of the larger colloid molecules into small ones.

Again, as regards the passage of NaCl into the tissue cells, the author assumes that all the salt has to do is to "pass on" in exchange for water; but, in the first place, the cell membrane is a varying quantity, changing its character according to the composition of the protoplasmic contents. At one time it may be semipermeable as regards crystalloids; not so at another. This is part of the mechanism known as "selective absorption" on the part of the cell—a property which has even been shown to hold in the case of dead membranes (Ramsay). In the case of NaCl, this salt in the weak solutions used would practically be entirely dissociated. If the cell membrane were semipermeable as regards one ion, the other ion could not pass in owing to the electrostatic force, unless another ion of equivalent electrical charge crossed out at the same time. It is a matter of exchange, however, as regards the crystalloids in any case where the membrane is permeable. Further, the raising of the osmotic pressure within the cell owing to increased chemical activity resulting from concentration would hold in check any exchange with NaCl over and above the cell requirements—at least, very largely.

One other remark may be noticed. The author states that "no increase in albuminous bactericidal substances in the wound is to be expected from the process of osmosis." On the contrary, as the albuminous substances within the cell are raised in molar concentration, as mentioned, their activity as bactericidal agents would be increased. The enzymes, as well as the substrates, are increased.

The manner in which hypertonic saline acts when in contact with a wound may be described, so far as the facts of physical chemistry go, somewhat as follows: There is a loss of water from the tissue cells passing out to the saline solution. This causes increased concentration of the cell contents; colloidal molecules break down into smaller molecules or into crystalloid amino acids; colloidal glycogen may break down into crystalloid sugar, etc. NaCl or its ions enter the cell largely in exchange for electrically equivalent ions or equivalent salt molecules, the colloids being practically all retained. The osmotic pressure of the cell being thus raised, that of the lymph surrounding would also be raised by the passing out of molecules from the cells into the lymph channels. This in turn would cause an outflow of water from the blood into the lymph vessels; the current of lymph would be swollen, and diffusion of lymph into the saline dressing

solution would be augmented. In other words, hypertonic saline acts as a lymphagogue, and, so far as the statements attributed to Sir Almroth Wright are quoted in the article, in respect of the physical action of hypertonic saline, no exception can be taken to them, as it appears to me.—I am, etc.,

London, W., Sept. 7th. A. G. AULD.

HEART AFFECTIONS IN SOLDIERS.

SIR,—Dr. Lewis and Captain Cotton kindly furnished me with particulars of the scheme of treatment in use at the Military Hospital, Hampstead, as described in the JOURNAL of September 23rd, p. 418, and we have found it of the utmost value in this general military hospital. Its adoption presents no difficulty, and it furnishes an excellent guide to the classification of heart affections in soldiers.

I cordially recommend medical officers in charge of military hospitals to employ it in all its details, and I can fully endorse the statement as to immunity from accident if the cases are thoroughly sifted before beginning the exercises, and carefully watched as the exercises advance. —I am, etc.,

JEFFREY RAMSAY,
Captain R A.M.C (T.),
1/1st East Lancashire Casualty Clearing Station.

The Military Hospital, Aylesbury, Bucks, Sept. 25th.

POSITION OF THE BRITISH MEDICAL PROFESSION AFTER THE WAR.

SIR,—Dr. Fothergill, in his letter of August 19th, says: "Every medical practitioner . . . must have felt profound anxiety as to the future of his profession as a consequence of the world-wide war." I am not so weighed down by anxiety as to the consequences of the war, and like to live in the present. I think that the cause of the gravest anxiety was in being, and had its origin long before the war. If we be true to ourselves, the war need cause us little anxiety; but if, as in the past, we be indolent, deficient in self-reliance, and unbusinesslike, then possibly, and indeed probably, the war may be taken advantage of to increase our discomfiture and still further lower our professional status. The war will not have been the cause; it may be an extra means for our enemies. The cause will be our chronic medico-political inertia and our want of union. Our civilization, social traditions, and customs will not be placed in the crucible at the termination of the war. Other wars—not so great as this, it is true—did not seem to alter much the habits of the belligerent nations after peace was restored. The Franco-Prussian, Russo-Turkish, Russo-Japanese, Hispano-American, and South African wars did not seem to alter much the civilizations and habits of the peoples involved, and I am not aware that, except by taxation, the status of the professional classes was relatively much altered. The amazing thing was the comparative rapidity of the recuperative process when peace was restored. Why should this war be different?

I, however, agree that there is cause for "profound anxiety" when we contemplate the effects of the sturdy Prussian seedlings planted here before the war, and the inroads which are being made on our profession without either consultation or consent, and to which we most tamely submit.

There is a school of thought in the highest places in our profession which assumes that when the Government through one of its Boards—such an antediluvian institution as the Local Government Board—evolves, on the advice of a few medical officials, and promulgates a scheme dealing with the most vital principles, rights, and privileges of our profession, we have simply to submit, and in sheer impotence agree. "The Government have made all arrangements," they say. By Order in Council, or some other of the modern system of delegated law-making by regulation, the scheme is in force before we know of it. We are "inarticulate, and unable to protect the interests of medicine." The schemer is triumphant; our impotence is assumed.

The demagogue at the hustings becomes the democrat in the Commons, and begets the bureaucrat and the autocrat through his "regulations." Parliament, the direct representative of the people, has delegated its function and partly lost control. The permanent official becomes a super-man, the temporary one a political hack. This is one of our greatest dangers, this school in our own ranks. There can be no improvement unless and until we value our freedom and status, and are fired by an honourable pride in our profession and its independence—a pride incompatible with the school of thought I refer to—and say to the stipendiary politician, no matter what his station or position: "Sir, we have not been in any way consulted about your scheme, which concerns our very existence; consequently, we decline absolutely to assist you." Government schemes will then be more carefully evolved by Government schemers. By our virility and self-reliance, our status, honour, and interests will be duly safeguarded.

If we assume the attitude of the mendicant, we shall deservedly fill that of the slave. The politician's guiding star is not justice; his compass is set for expediency. He is actuated by votes. We have not large voting power, therefore our safeguard must be union.

Dr. F. Rees, whom I congratulate on his memory, has written an extraordinary letter. We are in "bad odour with public authorities," forsooth, "because we wish to maintain the honour and interests of our profession"; because "we seek freedom from unnecessary lay control"; and because "we complain of inadequate remuneration." Long may we cherish such ideals. "Our *raison d' être* is the good of the community." On what facts this novel diagnosis is based I do not pretend to know. The public bodies—the very cream of British intellect—generally so supremely conscious of their individual interests, would rob us of ours. We must take good care that their efforts fail. Truly we want medico-political as well as professional education; education of the public will follow as a necessary corollary. If we were better educated professionally there would be fewer trying to substitute for skill cunning and meanness.

Dr. Fothergill has his panacea in a new committee. Dr. Pochin wants another. Neither will serve our present purpose. Our danger is immediate and pressing. Further committees will only waste time; already we possess nearly a score. The profession is seething with discontent. Sporadically, as in Kent and Cheshire, men are driven to take the matter in their own hands. They are prepared for resignation from the panel. The Government, while living on a political truce, refuse truce with the profession. The reward of two years' war work and charity is to reduce notification fees, and now through the insurance bureaucrats to increase clerical work (without increased pay) by compelling panel practitioners to "devil" for the newly incubated experts. This is forced on by regulation, without consultation, and called an agreement. The Association as an organized body is meanwhile hibernating, or statuesque on a pedestal of "Wait and see."

Extra illness—increased venereal disease and invalided sailors and soldiers—is thrown on panel practitioners, and yet the Representative Body and the Council can do nothing better than start a new committee.

If we loved one another half as much as we pretend to love the public it would be better for medicine and for the public too. Let us act the part of men; the respect of the public will assuredly follow. Charity, when exacted by regulation, ceases to be charity; it is then slavery.

The Association, apparently heedless of the centrifugal forces at work, refuses to co-ordinate, organize, and guide effort. It thus loses members and confidence.

This is our most urgent want: Leadership—commanding leadership—just as the inspiration and skill of a great military commander gets willingly every atom of effort out of every fibre of his men.

Dr. Fothergill states "we must not think only of self." I most whole-heartedly agree; but let us remember

> This above all,—To thine own self be true,
> And it must follow as the night the day,
> Thou canst not then be false to any man.

—I am, etc.,

Portsmouth, Sept. 26th. DENIS A. SHEAHAN.

SIR,—Those who still cling to the Association will not find encouragement in the note on the Commission of Investigation appointed by the Faculty of Insurance, nor in the Commissioners' letter of July 5th, published in the JOURNAL of September 16th. This article contains no promise of future investigation of the position of panel doctors. The unfair treatment of the profession under the

Insurance Acts began before the war. The rise in the cost of living, drugs, and transport, the call for more men for the R.A.M.C., and the severe pressure of work on doctors at home (which will increase during next winter) make immediate action imperative. General practitioners all over the country have been and are overworked, and some are threatened with physical breakdown. There is no valid reason why, though we are at war, medical men should be overworked and underpaid any more than miners or railwaymen, whose claims it is just to consider.

My friend Dr. Noy Scott writes of the desirability of increasing the membership of the Association. But I fear this will not be done by itinerating medical secretaries, however eloquent or persuasive. Concrete evidence of the value of the Association as a medico-political force is necessary. This may be freely conceded without undervaluing the half-crown victory of four years ago.

What is the lesson of the failure of the anti-Insurance Act agitation? Many of us know well, from personal experience, that the conditions of practice in different parts of the country are utterly diverse—for example, in agricultural, mining, and industrial centres. Again, in some places medical clubs have flourished for generations; in others they have never gained a footing. When the Insurance Act promised increased remuneration it was welcomed; elsewhere it was detested.

Nearly all the victories gained by the profession in the past have been local victories, the results of local organization and cohesion, doubtless backed up in many cases by the moral support of the whole profession.

One lesson, then, is that more power should be given to the Divisions of the British Medical Association. In a word, we need, under proper safeguards, home rule for the Divisions. Any resolution of a Division on matters affecting medical politics in the Division area, if not disallowed by the Council of the Association, should bind all members of the Association. For instance, a Division might decide that, in view of the large amount of needless work under the Insurance Acts, medical benefit should cease and insured persons make their own arrangements. Such a step would naturally only be undertaken after consultation with absent panel doctors. Such a decision (subject as aforesaid) would be backed by the whole Association. And so with regard to the terms and conditions on which insurance and other work is done in different areas. Only the stronger Divisions could act effectively, but their example would demonstrate the real power inherent in the Association. A resolution to this effect was debated and lost at last year's Annual Representative Meeting. If, however, something of the kind is not done soon the steady drift from the Association's ranks will go on. Local bodies on trade union lines (federated it may be) will take up the work which should have been done by the Divisions.—I am, etc.,

J. CUTHBERTSON WALKER.

Military Hospital,
Alexandra Park, Stockport,
Sept. 22nd.

SIR,—The question which is being repeatedly asked is, What society or association can best be trusted with our case? There is but one answer—the British Medical Association. Even the malcontents cry, Why cannot the British Medical Association take up this question or that? The Association is in a position to undertake any medical problem, and successfully if, and only if, the members of the Association are true to the Association. We are told that the Divisional meetings are badly attended as a symptom of the dissatisfaction of the members with the work of the Association. All the papers sent down by the Association for discussion at Divisional meetings refer to matters of vital importance to the well-being of the profession. All the members of a Division have adequate notice of the subjects to be discussed. If medical men are so dull and uninterested that they do not attend such meetings, they surely are to blame and not the Association.

How are we to increase the membership of the Association? By replacing apathy by energy. How are we to effect this change? I cannot answer the question. I remember asking a colleague why he was not present at a Divisional meeting at which some important matter was discussed. "These medico-political matters do not interest me in the least," was his reply, and this reply sums up the difficulties with which every active member has to contend, and the difficulties which hamper the Association. There are members who grumble at the amount of the annual subscription, and yet expect the Association to take up any case which may involve their personal interests. There are men who complain that clinical subjects are now rarely discussed at Divisional meetings, and yet when clinical material is provided these very gentlemen absent themselves. Instead of blaming the Association, let us pull ourselves together. That which is irksome in the doing is most frequently profitable in the result. I think that at all Divisional meetings dealing with the problems connected with medical practice after the war non-members of the Association should be invited to attend, and subsequently to join the Association.—I am, etc.,

Monkhams, Sept. 17th. S. J. Ross.

THE ROYAL COMMISSION ON VENEREAL DISEASES.

SIR,—No doubt the Commissioners are right in refusing to recommend compulsory notification. It would lead to concealment, the increase of quacks, and innumerable other ill effects.

When compulsory notification does come, be it a hundred years hence, it will be followed by the same evasions. The sad part of it all is that we are once more relegated to the wait and see policy. Public opinion is to become more enlightened, adequate facilities for treatment to be provided, then it is possible that notification may be demanded. All this takes one back to biblical days when a leper was made to feel that he was an outcast.

Syphilis and gonorrhoea are microbic diseases no less than diphtheria and enteric. They are the cause of infinite more distress and illness than either of these latter diseases, yet, in an age when scientific enlightenment is supposed to be on the top of the wave, we are asked to shut our eyes to or to blink at the direst scourge to which the flesh is heir. Truly a puzzling conundrum for future generations to unravel.

A man becomes infected with venereal disease. He is supposed to have committed some crime, and he creeps into your consulting-room with shamed face and abject misery in his step, afraid to speak. A woman undergoes a thousandfold more misery, and probably hides her trouble until too late.

Why should this be? Public conscience holds up its hands in horror at the mention of the Contagious Diseases Act, shuts its eyes, and thanks God for a good dinner, caring little for the tragedy that is being enacted all round.

The subject is a delicate one—admitted, but we have made it so. It is the lack of courage to tackle the question scientifically that makes it difficult—the pandering to narrow-mindedness, and the dread of being accused of fostering a condition of things that has gone on since the world began, and will go on until it ends.—I am, etc.,

London, W., Sept. 9th. A. MACBETH ELLIOT, M.D.

EMOLUMENTS OF OFFICERS OF R.A.M.C. (SPECIAL RESERVE).

SIR,—I should like to emphasize a few of the points brought forward by your correspondent.[1] In the first place, I should like to point out that he puts our case forward very mildly indeed. I will compare the case of a captain (Special Reserve) with that of a temporary officer (for the first six months the conditions are worse). If a Special Reserve officer is stationed in England for some time he is losing badly, for at most he can only obtain £1 a day—namely, 15s. 6d. pay, 1s. servant allowance, 3s. 6d. field allowance—thereby losing, compared with an officer holding a temporary commission, £1 8s. a week. An officer in the Reserve invalided home, while in hospital, can draw no more than his pay—namely, 15s. 6d. The temporary officer draws 24s. as usual. Net loss, 8s. 6d. a day.

While on sick leave a Special Reserve officer draws his pay *plus* 3s. lodging allowance—that is, 18s. 6d. a day; net loss, 5s. 6d. a day. While in England, which may be some considerable time if he has already been out, he draws £1 per day; net loss, 4s. a day. Let me add that there is usually a considerable amount of trouble and inconvenience in getting allowances, especially if one experiences a succession of rapid moves, and also if one is in a garrison town.

[1] BRITISH MEDICAL JOURNAL, August 19th, p. 278.

To illustrate this last point let me mention my own case. I am at a hospital in such a town, but we have no mess and no officers' quarters; therefore all must live out. Instead of claiming field allowance, which I cannot do, I claim lodging allowance at 3s. a day, but the claim is returned from head quarters marked, "Not allowable—this officer should be quartered and messed in ..... barracks with ..... regiment," half a mile away. I am then under an obligation to live in a strange mess as an outsider with 15s. 6d. a day, or on pay and no allowances. In any case I lose, as officers with temporary commissions are given quarters in such places, and they do not lose 3s. a day by so doing. The net loss is still 8s. 6d. a day.

That is to say, men who have been ready at any moment to serve their country are penalized to the extent of 8s. 6d. a day when compared with those who have been practically compelled to join in the war.—I am, etc.,

SPECIAL RESERVE.

Obituary.

GEORGE WILKINS, M.D.,

EMERITUS PROFESSOR OF MEDICAL JURISPRUDENCE, MCGILL UNIVERSITY, MONTREAL.

WITH the death of Dr. George Wilkins upon August 7th, at the age of 74 years, a familiar and burly figure has passed out of the Montreal medical world. Of late years he had given up one after another of his many appointments, and it was difficult for the younger generation of medical men to realize what he signified and what he accomplished in his prime. The student of to-day knew him through the many stories, all kindly, of old "Thquamouth epithelium" and his classes in histology and medical jurisprudence, stories that had descended, like the notebooks on the latter, from previous generations. Yet in his time he had been a pioneer, in the days when the dissecting room and the chemical laboratory—and not always either of these—afforded the only practical courses in preliminary science in the medical schools of North America. He it was who, becoming first lecturer in practical physiology at Bishop's College, and later lecturer in histology at McGill University, introduced in Montreal—if I am not mistaken—the first regular course in the practical study of histology in any medical school on the North American continent. Only three dozen years ago it was unheard of for the university to provide microscopes for the use of students. This did not deter Wilkins: he provided his own microscopes. For the medical school to supply a laboratory for histology was also too great an innovation. This again did not deter him: he held the class on practical histology in his own roomy house, and such is the force of habit that he continued to do so even after the tide had turned and universities and medical schools vied with one another in offering accommodation for laboratory work. It is well that the debt should be remembered that we of to-day owe to the lone enthusiasts who in the lean years gave of themselves freely, and made the present possible.

George Wilkins was born at Mountrath, Ireland, in 1842. He went to Canada at an early age, obtained his medical education at the University of Toronto, and received his degree in 1866. He settled in Montreal in 1871, after some five years spent partly as a ship's surgeon, partly in post-graduate work in London, where he took the diploma of M.R.C.S. He soon became associated with the medical school of the University of Bishop's College, a body now merged into McGill University; in the seventies and early eighties it was a thriving institution, which throughout the whole of its short career afforded to the McGill University some of its best trained and most active teachers. At Bishop's College Dr. Wilkins was first Professor of Pathology and later of Practical Physiology. He transferred his services to McGill University in 1882, being appointed Professor of Medical Jurisprudence and Lecturer in Histology. In 1876 he had been appointed physician to the Montreal General Hospital. Those who attended the meeting of the British Medical Association in 1897 will recall that in that year, as President of the Montreal Medico-Chirurgical Society, he took an active part in the welcome extended to Lord Lister and to the other visiting members of the Association.

Professor Wilkins was for long interested in life assurance. For many years he was associated with the Sun Life Assurance Company, and in 1880 he was appointed medical director of this, one of the largest Canadian insurance institutions. His services in this direction were recognized in 1911, when he was elected president of the American Association of Medical Directors of Life Insurance. For long years he was a regular attendant at the annual meeting of the Association of American Physicians at Washington. Among his other interests he dabbled in architecture.

His wife predeceased him by a few days. His son, Captain W. A. Wilkins, C.A.M.C., has done good service overseas with the 3rd Canadian General Hospital.

THE LATE SIR LAUDER BRUNTON.

SIR DYCE DUCKWORTH writes:

I am pleased to add to the appreciations in your JOURNAL of my old friend and colleague Sir T. Lauder Brunton.

He was one of the most remarkable men I have known in our profession. His earnestness and energy bore on the whole conduct of his life, but never spoiled his demeanour, or lessened his sweetness and sympathy. The warmest and most cheerful of friends, generous and hospitable, he irresistibly drew men to him. His powers for work of all kinds were extraordinary, and evidence of this was shown by his capacity to carry on laborious hospital duties and teaching together with complicated laboratory researches. The variety of his interests in medicine and pure science was truly remarkable. He travelled in both hemispheres, and over large areas of Europe. He found and made firm friends wherever he went. He was an outstanding figure at each International Medical Congress, and was generally regarded in the various capitals as one of the lights of British medicine. He kept close touch with his old masters in several Continental schools, but was greatly shocked by the conduct of most of the German professors on the outbreak of the present war.

Although his clinical methods were largely guided by his physiological knowledge, he was never averse from employing remedies of repute for the relief of suffering. His output of literary work was very large. Always sincere, dependable, and hopeful, he was the best of companions and conversationalists. His career throughout was an extraordinary one, and his place in medicine may almost be regarded as unique.

His patriotism and unselfish generosity manifested themselves throughout his life, and were nobly and unostentatiously rendered during the last years of his failing health. I imagine that few men have led so full, interesting, and wide a life as Lauder Brunton.

Our profession is much the poorer in many ways for his departure from it. R.I.P.

Dr. JOSEPH ADAMS, who had been in practice in Warrington for thirty-three years, died on September 15th. His wife had died a fortnight previously, and he went with his family for a short rest to Blackpool, and died suddenly there. Dr. Adams was born at Hanley in 1856, and educated at Northwood Academy. He studied chemistry and materia medica at the Royal College of Surgeons, Edinburgh, and worked for a couple of years at Messrs. Duncan, Flockhart, and Co.'s laboratories. After taking the Huxley medal in comparative anatomy, and the Balfour medal in botany, and attending courses in some London hospitals, Dr. Adams graduated M.B., M.Ch.Edin. in 1880. After a series of professional experiences in other northern towns, he settled in Warrington in 1883. He was appointed M.O.H. to the Runcorn District Council, and discharged other public duties with great ability. When 21 years of age he was a private in the University Company of the Edinburgh Rifles, in 1888 he was appointed surgeon-lieutenant to the Warrington Corps, and became surgeon-major; and the decoration of V.D. was conferred on him seven years ago. He helped the formation of the Warrington Corps of the St. John Ambulance Brigade, and in 1912 was made Honorary Associate of the Order of the Hospital of St. John of Jerusalem in England. When the war broke out Dr. Adams left Warrington with the Territorials, and accompanied them to a home station in Scotland; unfortunately his health broke down, and he was compelled to return. He resumed practice for a time,

but his wife's death affected him deeply. The funeral, which took place on September 19th at Lymm Parish Church, Cheshire, was attended by a large number of friends and by representatives of institutions with which Dr. Adams was connected.

THE LATE MR. KEOGH MURPHY.—Dr. John J. Blagden (Chester) has sent us the following appreciation of Mr. Keogh Murphy, supplementing the obituary notice which appeared in the BRITISH MEDICAL JOURNAL of September 23rd:

He was an ardent Freemason, was a Past Master of the Carthusian Lodge, and attained the coveted dignity of office in the Grand Lodge of England. A long list of academic honours gives but a poor idea of the man himself. "Pat Murphy" was certainly one of the cheeriest and most deservedly popular men of his time at Cambridge and in any other society of people into whose companionship he came. Gifted with far more genuine eloquence than is regarded as being an attribute of his race, with manners of unusual charm, with obvious sympathy with others, and with a delightfully ready wit and a sense of droll humour that is rarely equalled, he was an exceptional and delightful personality. Add to these qualities his undoubted skill in his professional work. He was ambidextrous to the extent that he held his scalpel when operating in his right or left hand with equal facility. As a staff surgeon in the Royal Naval Volunteer Reserve he served in the Hospital Ship *Soudan* in the North Sea from August, 1914; then in Gallipoli, and finally in the Royal Naval Hospital at Stenhouse, where he died in harness. He leaves a widow and an only son—a cadet at the Royal Military College, Wellington, Madras.

Universities and Colleges.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on September 21st, Dr. Frederick Taylor, the President, being in the chair.

Committee of Reference (War).

Arising out of a resolution passed by the Committee of Reference at its meeting on September 14th, the following resolution was proposed by the Second Censor (Dr. W. Pasteur), seconded by the Third Censor (Dr. Sidney Martin), and carried:

> The College authorizes its representatives in the Committee of Reference to consider in that committee and, if necessary, in conjunction with other parties, urgent medical questions arising out of the war, such as the treatment of disabled soldiers, and, when necessary, to advise the Government thereupon, the President undertaking to report from time to time to the College.

The President then dissolved the Comitia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN Extraordinary Council was held on September 22nd, when Sir Watson Cheyne, President, was in the chair.

Resolution of the Committee of Reference.

A memorandum from the Chairman of the Committee of Reference was considered, and the following resolution was adopted:

> That the College authorize its representatives on the Committee of Reference to consider in that committee, and, if necessary, in conjunction with other bodies, urgent medical questions arising out of the war, such as the treatment of disabled soldiers; and, when necessary, to advise the Government thereupon, the Committee undertaking to report from time to time to the College.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.

ROLL OF HONOUR.

THE Dean would be glad to receive as soon as possible the names of past and present members of the medical school who are serving in H.M. Forces, together with details of rank and regiment and of any honours which have been awarded, in order that the roll of honour may be brought up to date.

The Services.

INDIAN MEDICAL SERVICE.

THE Secretary of State for India has decided that any officer appointed by nomination to the Indian Medical Service during the present suspension of appointments by competitive examination shall be allowed to count:

1. *As service for pension.*—Any service rendered by him during the present war as a medical or combatant officer or in a position usually filled by an officer.
2. *As service for promotion.*—Any service rendered after July 16th, 1915, which counts for pension under 1.

The reason for confining the service specially counting for promotion to service rendered after July 16th, 1915, is that this condition is necessary in order to prevent officers appointed by nomination during the suspension of appointments by competitive examination from obtaining seniority over those previously appointed by competitive examination.

It will be remembered that nominations are made by the Secretary of State for India on the advice of a selection committee; applicants must be over 21 and under 32 years of age. Full particulars can be obtained from the Secretary, Military Department, India Office, S.W.

EXCHANGES.

LIEUTENANT R.A.M.C., at present in field ambulance attached to regular division in France, would like to exchange with officer in base hospital, casualty clearing station, or hospital train. Address No. 3900, BRITISH MEDICAL JOURNAL, 429, Strand, W.C.

M.O. (Territorial), attached artillery unit eighteen months in the line, is desirous of effecting an exchange with R.A.M.C. officer on home service. Hospital work in London preferred. Address No. 3800, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Regimental M.O. to an infantry service battalion in Egypt desires to exchange with M.O. in France or England. Address care of 53, Stramongate, Kendal.

M.O., second line unit, home services, wishes to exchange regimental M.O. abroad or unit under orders for abroad. Address No. 3898, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

SUMMER time is to be abandoned at 2 a.m. Greenwich time on Sunday, October 1st; that is to say, clocks which were altered to summer time must be stopped, or put back one hour or put on eleven hours, before the working hours of Monday begin.

THE session of the faculty of medicine in the University of Leeds will be opened on Monday next. The Honourable Rupert Beckett will deliver an address at 4 p.m. in the School of Medicine.

THE late Mr. Morton A. Smale left estate valued at £14,800. He bequeathed £1,000 to the Royal Dental Hospital, Leicester Square, for the payment of any debt or for providing poor patients with artificial teeth.

THE first meeting of the section of obstetrics and gynaecology of the Royal Society of Medicine will be held on Thursday next at 8 p.m. At the meeting of the section on November 2nd a discussion on the need for improvement in the care of pregnant women will be opened by Dr. S. G. Moore, M.O.H. Huddersfield, and continued by, among others, Drs. Amand Routh and Comyns Berkeley, and Lady Barrett.

A SPECIAL exhibition, illustrating the folklore of London, will be opened at the Wellcome Historical Medical Museum (54A, Wigmore Street, Cavendish Square, W.) on Monday next. The collection has been formed by Mr. Edward Lovett of Croydon, and consists of medical charms, amulets, and other objects used to avert disease, to ward off evil and to bring good fortune. The exhibition will be open daily from 10 a.m. to 6 p.m., except on Saturdays, when it will close at 1 p.m.

THE Lord Mayor of London announces that the council of the Lord Kitchener National Memorial Fund has resolved to found a number of scholarships to enable young Britons destined for a commercial career to study, travel, and gain business experience in the countries of the allied nations. The intention is that those elected to hold scholarships should begin their studies immediately, and should receive instruction in Russian, French, Italian, and other languages, in economics, and in offices or factories, and that immediately after the close of the war they should be sent for a year to travel in one or other of the allied countries in order to obtain a close familiarity with its language and an intimate knowledge of its commercial methods, needs, and opportunities.

THE committee for the British Prisoners of War Book Scheme has now been constituted, with Mr. A. T. Davies, of the Board of Education, as chairman, and Rear-Admiral J. F. Parry, C.B., hydrographer to the navy, as treasurer. The principal examiner to the Board of Trade (marine department) reported that nineteen candidates presented themselves at a recent examination at the camp at Groningen for the second mate and other certificates, and all passed in a highly creditable manner. This fact bears testimony to the value of the opportunities for self-improvement afforded at the camp. Further classes are now being formed, and evidence is coming in from camps as far distant as Asia Minor of considerable development in the organization of educational work among the men interned there. The committee appeals to the public to continue to help by offering suitable books, new or second-hand. Full particulars of the class of books needed can be obtained on application to Mr. A. T. Davies at the Board of Education, Whitehall, S.W.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES.

MOSQUITOS.

T. D. T. B. (somewhere in Belgium) writes: Barring the not infallible net, is there any preventive to deal with these insects? Or, after these stinging creatures have got home, is there any salve or what-not to relieve the exasperation of mind and soul and body?

*** Many preventive measures against mosquito bites have been recommended from time to time, but none has proved really satisfactory. The basis of most preparations is some strong-smelling volatile oil, such as oil of lavender, citronella oil, or eucalyptus oil. When first applied the smell repels the mosquitos, but as this passes off the insects bite readily again. After being bitten, ammonia may be applied to the puncture, or carbolic lotion, 1 in 20, or lysol solution. The cellulitis that occasionally follows such bites is probably due to an infection with streptococci or staphylococci, and the application of an antiseptic is useful in preventing this.

LETTERS, NOTES, ETC.

ASSOCIATION OF FRENCH ARMY DOCTORS.

DR. D. ROBERTS (Swadlincote) writes: Under "Medical News" in the JOURNAL of September 23rd, fourth paragraph, is a short account of the above. All the objects named are excellent except the last one—namely, "preferential treatment in the matter of appointments." This is one of several methods by which the authorities in this country will try to swamp the general practitioner after the war. To say the least, it would be very unsportsman-like, and I think we can trust our chivalrous confrères at the front to avoid such a pitfall. Those who are now "holding the fort" at home in a medical sense are also deserving of consideration.

THE REPORT OF THE ROYAL COMMISSION ON VENEREAL DISEASES.

DR. ROBERT GIBSON writes: While agreeing with the Commissioners that compulsory general notification of venereal diseases is not yet called for, it seems to me that notification for some trades—for example, cooks, bakers, butchers, etc.—is already necessary and desirable. It seems too terrible to see cases of syphilis amongst such trades and to be unable to do more than tell them that they must not follow their occupation for a prolonged period. I have had, and still have, such cases under my care, but am helpless to prevent them from following their work. The last case, a cook in a restaurant, had a chancre on the index finger and a secondary rash over the body. As the law stands at the present time I am unable to compel this man to give up his work. The "enlightenment of public opinion" seems too far off for such cases.

TREATMENT OF LARYNGEAL TUBERCULOSIS.

DR. EDWARD E. PREST (Ayrshire Sanatorium, New Cumnock) writes with reference to the note by "Medicus" in the BRITISH MEDICAL JOURNAL of June 10th, 1916, p. 840, that there is nothing wonderful in a patient recovering from laryngeal tuberculosis when absolute silence is prescribed; this should be the routine treatment. "Medicus's" case is a good example of one of the ways in which tuberculin may do harm when administered by an expert in tuberculin, or by any one else. That tuberculin may do good in certain cases of laryngeal tuberculosis seems clear, and when a cure takes place is analogous to the stimulation of a callous ulcer; on the other hand, such stimulation may simply lead to increase of the disease. It is not necessarily wise to stir up a latent tuberculous focus on the off-chance of being able to cure it. It can seldom be possible to obliterate successfully and with safety every tuberculous focus in the body. If "Medicus" would like to know why tuberculin has been given up at Midhurst, he should read the Preliminary Report on the Treatment of Tuberculosis with Tuberculin (Bardswell), H. K. Lewis, 1914. Case 50 (p. 125) in the above report is a good example of how tuberculin administered may produce good results, especially in chronic disease. Most of the other cases cited illustrate the fallacy of supposing that tuberculin has any universal application for good.

LIEUTENANT JOHN BAIN, R.A.M.C., commenting on the diversity of opinion regarding the treatment of laryngeal phthisis with tuberculin and complete disuse of the voice, writes: In my opinion, both these methods of treatment are necessary for a successful result in this type of tuberculosis, and more especially the latter. It has been my experience that unless absolute rest of the voice is insisted on the cure of laryngeal tuberculosis is either greatly delayed or does not take place at all. I was greatly interested to learn that Dr. Mackeith has had successful results without resting the voice, but, all the same, I cannot refrain from thinking that his results might have been even better had he taken the precaution to advise his patients to keep absolute silence for three months. I do not think it matters much what remedy we use to cure the tuberculosis—intravenous injections of iodoform, tuberculin, inhalations of garlic juice, or even an ordinary sedative antiseptic inhalation—so long as the voice is given absolute rest proportionate to the condition of the larynx when first seen. No doubt a fine climate like that of Madeira is a great help in bringing about a cure in these cases, but, like Dr. Mackeith, I have successfully treated cases of laryngeal tuberculosis in the town in which my patients resided, and have had every reason to be satisfied with the ultimate results.

RHUS TOXICODENDRON POISONING.

MR. L. P. SHADBOLT, F.R.C.S. (Bushey) writes: I have had under my notice during the past month three cases of poisoning by the American poison vine or ivy (*Rhus toxicodendron*) which have led to the discovery of four very sturdy specimens of this objectionable creeper growing on two houses in this neighbourhood. My attention was first drawn to this subject by an article by Sir E. Ray Lankester in his Easy Chair Series, styled, "A rival of the fabled upas tree," some years ago. Last month a patient came to me for advice for a peculiar bullous eruption on his hands and wrists which was accompanied by intense erythema. Erythema was also present about his face and various parts of his body, notably the genitals. His work was that of a painter. On inquiry I found that he had been engaged in painting a house in this neighbourhood, and had to clear away certain creepers from the framework of the windows; further, that his "mate" was suffering in the same way and had been engaged on the same job; also that the gardener at the house in question periodically suffered from the same affection. Remembering the article referred to above I sought it out and read it over. It has appended to it some engravings of the leaves of *Rhus toxicodendron*, and those of the large-leaved Virginia creeper, *Ampelopsis quinquefolia*. The distinction between them is that whereas the poison vine has a leaf of three leaflets, of which the central one is possessed of a stalk about 2 in. in length, the large-leaved Virginia creeper has a leaf of five, four, or three leaflets, all growing from a central point, the leaflets having no independent stalks. I then went to the suspected house and there found, growing on its walls and reaching to the eaves, two luxuriant plants of the poison vine, easily identified by the long stalk of its central leaflet. Further search revealed another specimen growing on a fence in the garden, and on the neighbouring house yet another.

I sent specimens of the leaves of the plants to the Director of Kew for official confirmation, and in due course received his report—*Rhus toxicodendron*. The tenant of the house informs me that the creepers had been established there at least ten years, and it is remarkable that these three cases of poisoning by the plant are the only ones recorded.

*** Poisoning by this plant is much more common in America than in this country, and most of the literature about it is American, but cases have been recorded from time to time in this JOURNAL. One of them—by Dr. H. W. Nott, of Little Sutton, Chester—was illustrated by a reproduction of the foliage (BRITISH MEDICAL JOURNAL, 1910, vol. ii, p. 545). The condition was described briefly by the late Dr. Radcliffe Crocker in his well known textbook, and also by Dr. Norman Walker in his *Introduction to Dermatology*. In the new edition (just issued) of Dr. Walker's book the account is fuller than in previous editions. It is illustrated by a drawing of the foliage and fruit, and reproductions of photographs of Dr. Nott's case. Dr. Walker writes: "The climate of the East of Scotland is too severe for the rhus. My worst case came from another part of Scotland, and occurred in a tramp to whom an apparently generous gardener had given half a crown and his dinner to prune a creeper that adorned one side of a mansion. The autumn tints of rhus leaves are lovely, and I have seen dermatitis caused by pressed leaves which had crossed the Atlantic and been used as table decoration."

HEALTH VISITORS AND BIRTH INQUIRY CARDS.

SIR FRANCIS CHAMPNEYS writes: I notice an error in my letter published September 23rd, p. 438 (last paragraph, first line). "Enforced" should be "enjoined."

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